

SCHOOLS



H. C. DYER

ATHLETICS FOR SCHOOLS



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ATHLETICS FOR SCHOOLS

by

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With a Foreword by

The Rt. Hon. LORD BIRCHLEY, K.C.M.G.

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FOREWORD TO THE FIRST EDITION

by

THE RT. HON. LORD BURGHLEY, K.C.M.G.

I AM happy to write a foreword to this book, *Athletics for Schools*, by Mr. Geoffrey H. G. Dyson and Mr. Joseph Edmundson.

Mr. Dyson has now been Chief Coach to the Amateur Athletic Association for over five years. The fruits of his labours were to be seen in the many successes of the United Kingdom in the 1950 European Championships. As a result of his work and that of his four assistants, we now have over a thousand Honorary Coaches who hold the highest certificate for teaching athletics.

For those who wish to do well in these events and get the maximum pleasure out of them, it is necessary to develop a correct style. This is most easily achieved if it is learned from the start.

In commending this book, therefore, I feel sure that it will be of immense value to those teaching or learning athletics in schools, and I can assure them, from personal experience, that the pleasure they will get out of this sport will be a joy to them all their lives.

ACKNOWLEDGEMENTS

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And last but by no means least, we extend grateful thanks to our two wives, whose help, encouragement and toleration have enabled us to produce this book.

G. H. G. D.
J. F.

DEDICATION

WE dedicate this book to the British Athletes of the Past and Present, who have built up a glorious tradition of sportsmanship and performance, and more particularly to the British Athletes of the Future, who we are certain will carry on and enhance those traditions in the years ahead.

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PART ONE

CHAPTER ONE

THE REQUIREMENTS OF ATHLETICS

FOR many years it was fashionable to say: "It's the game that matters; winning is of secondary importance." Unfortunately this was frequently translated in practice as "It's playing that matters," for up to very recent years how many athletes really made a serious study of their particular sports?

Generally, games were learned incidentally and skill was often acquired either by accident or by the emulation of more experienced players and not by personal analysis of technique.

To-day, largely through the efforts of the A.A.A. Coaching Scheme, it has become widely realised, not only by coaches but also by athletes themselves, that the most efficient way to learn a game or sport is by breaking down the complete technique into its *essential* skills, practising these regularly and carefully and by gradual progression building up a complete and polished performance.

This process should be carried on steadily through the Primary and Secondary Schools and finally be completed in the post-adolescent periods of life.

In ninety-nine cases out of a hundred it would be foolish and even dangerous to try to teach a child to swim by throwing him into the deep end of the bath. It is also unwise to attempt to make a child long jump, or high jump, or run half a mile *in competition* unless the child has been carefully and systematically trained.

Consider the second part of the phrase: "Winning is of secondary importance." We feel that this should be written as: "Winning fairly is of primary importance," and that the

essence of all sports is clean, healthy competition—a desire to be a better exponent of a game or individual skill than one's opponent.

What is really needed, then, is “The will to win and the skill to win”.

The main function of a school is not to produce either individual champions or champion teams, but to teach each and every child the fundamental skills of the major games and athletic events. It may be that as a result of this teaching, champions or potential champions are discovered; but again it must be stressed that the coaching of these outstanding performers must *not* be done at the expense of the less skilled. Generally speaking, the child who needs extra coaching is the poor performer, not the best one.

This does not mean, of course, that the embryo national champion must be neglected—but his or her specialised coaching should be done out of normal school hours, or without interfering with the normal class teaching of the skill-backward child.

Though one of the aims of Physical Education is to enable every child to lead a fuller life, many children—because of poor physique or poor neuro-muscular co-ordination—will obviously never develop skill beyond the elementary stages, and will not go on with a sport after leaving school. It is not quite so evident that a fuller life can be led in a physical sense by the spectator who has had coaching in and experience of the sports he chooses to watch, for watching is more satisfying if the spectator appreciates from his own experiences the finer points of the game or skill.

It is said that “Practice makes perfect”. Practice does not make perfect. Right practice may lead to perfection, but wrong, or unguided or misguided, practice merely emphasises faults which when fully established are almost impossible to eradicate. It is often far simpler to build up an entirely new technique than to rid long-standing faults in another.

Thus in coaching any athletic event, it is imperative that the teacher should know thoroughly the skill he is teaching. It is not absolutely essential that he should be able to perform the completed skill (if he can, so much the better), but he most certainly must know in the fullest detail what he is teaching; he must be able to recognise instantly when any fault develops, and he must be able to put it right.

Though it is not essential that the coach should be a skilled performer of the completed technique, it is essential that he should be able to demonstrate the earliest progressions.

The hackneyed phrase "We play games to keep fit" contains some truth and may be satisfying to the dilettante performer, but if games and sports are to be played at a high level of skill, and if as a result of more widespread coaching facilities we are hoping to raise the general standard of performance, then it is imperative to realise that "We should be fit to play games".

A balanced and progressive scheme of Physical Education is essential if the best possible results are to be obtained from improvements in both the technique and numbers of qualified games' and athletic coaches. In schools there is the *1953 Planning the Programme* (H.M.S.O.), and for post-school work many other syllabuses and works by recognised authorities on particular aspects of Physical Education. These should be studied and adapted where necessary to meet local requirements—but, above all, the physical training should be done regularly and progressively.

Without good physical development, within the limits of the individual body structure; without good muscle tone and a general feeling of physical well-being, a high general standard of performance will rarely be attained. An abundance of skill in technique and the presence of the will to succeed will not lead to the highest possible performance without a body fit to take advantage of these essentials to perfection in sport.

Finally, summarised, our conclusions are these: In all sports, if the best results are to be obtained, it is essential to have:

(1) A body in the good physical condition which can only be achieved by a systematic and progressive scheme of Physical Training.

(2) A progressive and co-ordinated scheme of coaching, starting in the early days of school life and carried on consistently by enthusiastic teachers who know their subjects intimately.

(3) A desire to succeed in one's chosen sport or event.

The aim of this book is to help teachers (particularly those who are not full-time specialists in Physical Education, but who have to teach such things as the mysteries of long division as well as the complexities of a Western Roll) to develop a scheme of athletic training and performance with their children which will help them to lead a fuller physical life, whether as performers or spectators.

We hope that most of them will, on leaving school, join some adult organisation catering for their favourite sport; but if they do not do so, we hope that they will get greater pleasure in watching because, at some time or another, they will have learned the skills and the rules, and thus will be more appreciative of the finer points of athletic performance.

CHAPTER TWO

THE DEVELOPMENT OF ATHLETICS IN INFANT AND PRIMARY SCHOOLS

(1) THE INFANT SCHOOL

THE athletic life of a child starts in early infancy, for all athletic events fall into three main classes: running, jumping and throwing; and, logically, when a baby first begins to toddle, or to play with a ball, it is unconsciously practising the simplest progressions which in some cases will lead to an Olympic Medal.

It is not, of course, suggested that because a child can toddle faster than the one next door that child should be systematically trained to become a world sprint champion, for there is already too much emphasis given to early specialisation. It would, in fact, be reasonable to say that specialisation in an individual event need not, and should not, be attempted until late adolescence.

The time given to such coaching would be far better spent in developing muscle tone and good physique, and in teaching good style in the earlier progressions of the major athletic events. Sprinting, in particular, is vitally important, for it is essential as a basis of all events, including jumping and throwing.

This development of muscle tone and good physical habits occurs naturally in the normally healthy young child in play. From the moment, however, that the child enters the Infants' School definite physical guidance is given; and it is at this stage that good teaching is essential, for the habits learned during the ages of from five to seven tend to persist throughout the remainder of one's life. If the instruction is neglected or

given wrongly, much time is lost in the Primary and Secondary School doing work that should have been done earlier. Unfortunately, in many cases the work is not done at all—owing to lack of time—and the child is plunged into a more advanced physical life without the benefits of a proper apprenticeship.

It has been mentioned earlier in this chapter that no attempt should be made at early specialisation. In the Infants' School, Physical Education schemes devised by various local authorities provide an adequate programme of training.

By the time a child reaches the age of seven, his Physical Educational Programme should have taught him the very simplest essentials of sprinting, hurdling, jumping and throwing; and, in addition, he has been given ample free standing exercises for general physical development. This training has been mainly in play form, but, nevertheless, the ground has been prepared for the work of the next three and a half years in the Primary School.

(2) THE PRIMARY SCHOOL

In the Primary School, the emphasis should be on a general all-round physical development, and in the later stages the gradual introduction of the early progressions of the major athletic events. There should be no specialisation, and no attempt should be made to produce child prodigies who can jump record distances or perform perfect Western Rolls or long jumps.

The aim is still best summed up on page 67 of the old *Syllabus of Physical Training for Schools*, It says: "*For children under the age of eleven, anything in the nature of serious athletic training is out of place, as the child, at this period, is too immature to be subjected to the physical and nervous tests involved, and is also too young to undergo specialised training in the details of technique.*"

"*If the ordinary physical training is athletic in character, giving scope for free natural movement, and the general coaching is on sound lines, the right foundation will have been laid. The normal physical*

PRIMARY SCHOOL PHYSICAL TRAINING LESSON

(30-minute lesson, 25 minutes' working time)

<i>Autumn Term</i>	<i>Spring Term</i>	<i>Summer Term</i>
Short period of P.T.	As for Autumn Term	As for Autumn Term
<i>Class Activities</i>	<i>Class Activities</i>	<i>Class Activities</i>
(a) Winter Games Practices	(a) Winter Games Practices	(a) Summer Games Practices
(b) Running or Jumping or Throwing	(b) Athletics Practices	(b) Athletics Practices
<i>Group Activities</i> (One change only see notes)	<i>Group Activities</i> (One change only)	<i>Group Activities</i> (One change only)
(1) Winter Games Practice	(1) Winter Games Practice	(1) Major Summer Games Practices
(2) Vaulting or Agility	(2) Small Ball Practice	(2) Minor Summer Practice or Agility
(3) Small Ball Activities	(3) Vaulting and Agility	(3) Athletics Practices (Running)
(4) Jump	(4) Athletics Practices (Running, Jumping and Throwing)	(4) Athletics Practices (Jumping and/or Throwing)
(5) Athletics Practices		
Short Game or Race Form Activity and Finishing Exercise	Short Game or Race Form Activity and Finishing Exercise	Short Game or Race Form Activity and Finishing Exercise

training lessons, by providing progressive training in running, jumping and other forms of general activity exercises, including informal hurdling, should help the children to cultivate ease and rhythm in movement, and develop in them the general power and co-ordination which is essential to good style and to the attainment of a desirable standard of athletic performance."

material, but it is felt that additional and alternative practices could be introduced with advantage in the group work of the normal P.E. lesson, and also during the Games lesson at certain times of the year. In Chapters 12-24 there are given detailed and progressive steps in all the athletic events considered suitable for schools. The stage of school life at which they might be introduced is indicated.

The Skeleton Form Lessons on page 23 are suggested for the three terms of the year for the older juniors, but it is realised that much will depend on school staffing and local conditions. More experienced teachers may wish to make and use alternative lesson forms to the ones suggested.

CHAPTER THREE

DEVELOPMENT IN SECONDARY SCHOOLS

FROM the age of eleven plus to fifteen plus in the Secondary Modern School, the development of athletics is made by a continuity of the methods used in the Primary School; that is, NO SPECIALISATION, and a strong emphasis on general athletic development and careful progression in the progressive skills of all events.

It will, however, become increasingly evident towards the end of the Secondary Modern period that certain children are developing a liking for, and a greater aptitude in, a particular event or types of events. This is probably the most critical stage in the athletic life of the child.

It cannot be stressed too much that at this point the almost overwhelming temptation to coach the child in a particular event to the exclusion of all others must be avoided at all costs. The child is undergoing mental and physical changes. For a time, previously acquired co-ordinations are lost, and at the same time the physical strength is increasing. Time is far better spent on increasing the general physical development of the child and helping him to reacquire the old co-ordinations or learn new ones. Once this has been done, then further progress can be made.

At fifteen plus, the Secondary Modern child should have acquired sufficient knowledge of all the major athletic events to enable him or her to join some youth organisation or athletic club, and to benefit from the specialised coaching that should be available there.

There are still many schools which do not have any direct

liaison with an athletic club. This, we feel, is a loss both to the school and to the club, for their interests are both parallel and complementary. It matters not by whom the efforts at liaison are made—the school or the club—so long as they are made. Most head teachers, and every specialist or part-time teacher of athletics, would welcome a talk to the children on some particular aspect of athletics by an official, coach or outstanding athlete of a club. Club officials could be asked to officiate—or if they are not asked, could volunteer to the school to officiate—in some capacity at the annual athletic meeting. Every advantage, too, should be taken of the facilities offered by the A.A.A. National coaches when they are lecturing in the school district.

Similarly, outstanding performers could be asked to demonstrate some particular technique, either at the Sports Day or during a normal lesson period; or, alternatively, the local athletic clubs could be invited to participate in some specially devised event in order that the children might see first-rate athletes in competition.

Failing this, or in addition, it would be of great value to take parties of children to first-class athletic meetings, not only to see athletic performances but also athletic organisation and administration. It must be remembered that though some children may never reach international class in physical performance, they might easily become top-class officials—providing they are given the opportunities and the incentive.

More advantage could also be taken of films or film-strips dealing with athletics. These could be used during the winter terms, or in inclement weather, as an alternative or an addition to the normal P.E. or Games lesson.

Lastly, the many excellent books that have been written on every aspect of athletics should have a prominent place in the school library, and the child should be encouraged to read them.

Athletics has an important place in education, and just as the teacher of an academic subject demands consideration and

a requisite amount of time to teach his special subject properly, so the specialist or part-specialist in Physical Education has an equal right to comparable opportunities for the development of athletics in the school.

All that has been said so far in this chapter applies to children of the same age-range in the Secondary Grammar School, or for that matter with children undergoing athletic coaching in out-of-school hours. From sixteen years of age onwards more advanced skills will be attempted and a higher degree of performance attained, but even at seventeen or eighteen, it is often too early to say that a boy or girl should concentrate on one particular event.

In many cases it will be quite evident that a child has certain physical characteristics which will help in his Athletic Group Classification. It is quite easy to recognise, for instance, that a child of a certain physique is more suited for throwing events than, say, for jumping, and limited specialisation is possible at this late adolescent period; that is to say, that the child may concentrate on a group of events—such as running or jumping or throwing—but not on a particular event within the group. The teacher or coach must always remember, even when the stage of complete specialisation is reached, that to develop a finished and polished technique is a slow process.

There is no short cut to 'style', and all preliminary teaching and coaching must be on orthodox lines. Skills must be learned and perfected, so that their performance becomes automatic; the child or adult must be able to perform them without thinking when finally the complete technique of an event is being practised and perfected.

In the early stages, of course, each skill must be given considerable thought, and it is advisable that the performer should be told the reasons for each particular technique. To perform a complicated or even a simple skill without knowing the reason for it has very little training value.

At this late adolescent period, particularly when the boy or

girl has developed an enthusiasm for athletics, there is a strong tendency to watch and copy slavishly the style, and more particularly the diversions from the orthodox, of outstanding athletes.

Sooner or later, most champion athletes develop some unorthodox movements in their performance, but they are movements peculiar to themselves and suited to their own particular physiques; although their development has apparently led to record breaking, it is fallacious to assume that similar unorthodoxy will turn every performer of the same event into a national or world champion.

To summarise, then, it is felt that:

(1) In the Secondary Modern School up to fifteen years of age there should be no specialisation.

(2) In the Secondary Grammar School, from the age of sixteen, there can, in some cases, be Group Specialisation, i.e. an emphasis on learning more advanced skills of throwing or jumping or running, but not specialisation in one single event.

(3) Athletics must be given the widest possible interpretation, and should include liaison with reputable clubs and visits to A.A.A. meetings and championships, so that the child can see not only outstanding athletic performers but also good athletic administration.

(4) Use should be made of visual aids, such as films, film-loops and film-strips. School libraries should contain up-to-date athletic reference books, and advantage should be taken of the facilities offered by the A.A.A. National Coaches and Coaching Schemes.

CHAPTER FOUR

ATHLETICS IN SCHOOL SCHEMES FOR PHYSICAL EDUCATION

IDEALLY, every school should have a daily period for some aspect of Physical Education.

Most Primary Schools, where there is limited specialisation, should be able to do this, and usually four of the five periods are devoted to Physical Training and one to Games, though in many mixed schools the Physical Training periods have been cut down to three and one Country Dancing period substituted. In some cases only four periods are allotted, three of which have been Physical Training and one for Games.

It is suggested, however, that during the summer term, when the weather is usually warmer and allows time for more frequent demonstrations and individual attention without the fear of either the children or the teacher getting cold, that the Physical Training periods be reduced and the Games and Athletics periods increased.

In view of the modern trend for a wider scope of activities generally, it may even be advisable and desirable to cut down formal Physical Training as such.

Overleaf are given some suggested period arrangements for Primary Schools.

THE SECONDARY MODERN AND SECONDARY GRAMMAR SCHOOLS

In the Secondary Modern and Secondary Grammar Schools where there is Full Specialisation, the exigencies of the timetable may allow for only three or four periods a week to be

PRIMARY FIVE-PERIOD SCHOOL

<i>Autumn and Spring Terms</i>		<i>Summer Term</i>	
<i>Subject</i>	<i>Periods</i>	<i>Subject</i>	<i>Periods</i>
Physical Training	2 ¹	Physical Training	2 ¹
Dancing or some form of movement with music	1	Dancing or some form of movement with music	1
Major and Minor Winter Games Athletics Practices	2	Major and Minor Summer Games	1
		Athletics Period	1

PRIMARY FOUR-PERIOD SCHOOL

<i>Autumn and Spring Terms</i>		<i>Summer Term</i>	
<i>Subject</i>	<i>Periods</i>	<i>Subject</i>	<i>Periods</i>
Physical Training	2	Physical Training	1
Dancing, etc.	1	Dancing, etc.	1
Major and Minor Winter Games Athletics Practices	1	Swimming ²	1
		Major and Minor Summer Games, including Athletics	1

¹ 1 or lesson form suggested, see Chapter Two, page 23

² This may be possible only for the children of ten plus, and it may have to be taken outside and in addition to the normal Physical Education periods. In such a case the games period could be increased from one to two and arranged as for the five-period school.

devoted to Physical Education. Wherever it is possible, however, it would be desirable to include a daily period. The children during this period of school life undergo great physical and emotional changes, and there is a real need for a great amount of guided physical activity.

The following period allocation is suggested:

SCHOOL SCHEMES FOR PHYSICAL EDUCATION

51

SECONDARY FOUR-PERIOD SCHOOL

<i>Autumn and Spring Terms</i>		<i>Summer Term</i>	
<i>Subject</i>	<i>Periods</i>	<i>Subject</i>	<i>Periods</i>
Physical Training	2 ¹	Physical Training ¹	1
Co-ordination and Movement, Major and Minor Games and/or Recreational activ- ities, such as Boxing, Judo, Wrestling, Basket Ball, Cross- country Running, etc.	2	Swimming ²	1
		Major and Minor Summer Games	1
		Athletics	1

¹ The lesson form suggested is the same as for the Primary School, given on page 23, except that the free standing exercises will be appropriate for the age of the child.

² If swimming is taken as an 'extra', this period could be devoted either to Physical Training or Recreational and Social Activities such as are indicated for the autumn and spring terms.

SECONDARY THREE-PERIOD SCHOOL

<i>Autumn and Spring Terms</i>		<i>Summer Term</i>	
<i>Subject</i>	<i>Periods</i>	<i>Subject</i>	<i>Periods</i>
Physical Training	1 ¹	Physical Training and/or Swimming ²	1
Recreational and Social Act- ivities, such as Boxing, Basket Ball, Wrestling, Judo, Cross-country Running, etc.	1	Major and Minor Summer Games	1
Major and Minor Games	1	Athletics	1

¹ See note at foot of Four-period Table

² If swimming has to be taken in Physical Education time on the timetable, it is suggested that it takes the place of the formal Physical Training during the summer term. More often than not it is additional to the normal periods.

SKELETON FORMS FOR SUMMER GAMES PERIODS

Where it is possible to include only one Games period on the time-table during the summer term, it is suggested that it should take the following form:

Summer Term Form for Single Games Period (Primary and Secondary)

(1) *Class Activities*. (Always first, including a few warming or limbering-up activities.)

(a) Cricket or Minor Games Practice.

(b) Athletics Practice.

(2) *Group Work*

(a) { Basic Athletic Practices selected from the progres-

(b) { sions given in the second half of this book.

(c) Games Practices for the Major and Minor Games.

(3) *Game and/or Race*, plus collection of apparatus and dismissal.

In the Secondary Modern and Secondary Grammar School, towards the end of the school period when children have acquired a fairly high standard of performance, the above form could on occasions be altered to the following:

(1) Games Group: Fully organised game of Cricket or other Major Game.

(2) Athletics Group: Free Practice of Specialised Group Activities.

(3) Collection and cleaning of apparatus and dismissal.

Summer Term Form for Double Games Period (Primary and Secondary)

<i>First Period Summer Games</i>	<i>Second Period Athletics</i>
<p>(1) <i>Class Activities</i></p> <p>(a) Major Games Practices</p> <p>(b) Minor Games Practices</p> <p>(2) <i>Group Activities</i></p> <p>(a) } Cricket or Major Games</p> <p>(b) } Practices</p> <p>(c) } Minor Games Practices</p> <p>(d) }</p> <p>(3) Games, plus collection of apparatus and dismissal</p>	<p>(1) <i>Class Activities</i></p> <p>(a) Jumping and/or Running Practices</p> <p>(b) Throwing Practices.</p> <p>(2) <i>Group Activities</i></p> <p>(a) Throwing } Skills from lists</p> <p>(b) Running } given in the</p> <p>(c) Hurdling } second part of</p> <p>(d) Jumping } this book</p> <p>(3) Game or Race, plus collection of apparatus and dismissal</p>

CHAPTER FIVE

THE SCHOOL GROUP SCHEME AS APPLIED TO ATHLETICS

In the past, and unfortunately in many areas to-day, there has been a tendency for each school, and each specialist teacher within the school, to adopt a 'water-tight compartment' mentality with regard to their school and school subject.

This has shown itself perhaps more in Physical Education than in any other subject in the school curriculum, for local sports and athletic rivalry have tended to make the specialist teacher or teacher responsible for a sport or game rather secretive about the work he has been doing. It has often mattered more that the school should provide the champion football team or the best long jumper in the district than that every child should have an opportunity to become a potential first-rate performer.

While there is much to be said for the encouragement of healthy inter-school rivalry, there is nothing to be said for a rivalry which blinds the teacher to the benefits of a co-operation between schools which will be of value to all. Merely to read books on Physical Education in an endeavour to see the scheme as a whole is of little real value, for no written scheme will ever be suitable for all schools in all areas all the time.

How many teachers concerned with Physical Education in the Primary School know the persons teaching the subject in the Secondary School, who will later be responsible for carrying on the work with their children? How many teachers in the Secondary Modern School have recently visited their 'feeding' Primary Schools to see the work being done there,

and to discuss with the specialist or semi-specialist teachers the children who are shortly to be transferred?

Without such co-operation and liaison, there is bound to be not only a duplication of effort but also a lack of co-ordination which is detrimental to the child.

It is suggested, therefore, that the most satisfactory method of drawing up a really useful Physical Education Scheme (which will, of course, include athletics) is on a School Group basis which takes into account the Secondary Modern School and its 'feeding' Primary Schools.

It matters not who takes the initiative in arranging a meeting of the teachers concerned in the group, so long as the result is achieved, but perhaps the person most appropriate to convene the initial meeting is the local Organiser of Physical Education.

He will also be invaluable in making liaison with the local athletic organisations, for it is one of the aims of athletic teaching in schools that the children should desire to continue their athletic experience on leaving school—and it is only in the clubs that they can get advanced post-school coaching, and ultimately hope to reach a really high standard of performance in their chosen event or groups of events.

In the past there have been many harsh criticisms levelled at the schools by athletic clubs and vice versa, but this has been due to a lack of appreciation of each other's problems.

In the complete athletic education of the child, the school work must lead to club work, and the club and club coaches must realise that the schoolmaster is the best-qualified person to teach athletics in school to school children. He is not working against the club but for it, and the more moral and physical support he gets from the athletic organisations (who should not try to do his job for him), the better it will be for the individual child and for British athletics as a whole.

The School Group Scheme for Physical Education should then be considered and devised for that group at a meeting of the teachers responsible for the subject in the schools within the

group. No two groups within any one district are likely to have the same facilities, so that no scheme drawn up by one group is likely to be valid for another. The broad principles for all groups throughout the country will be the same, but the practical application of those principles will differ from group to group.

In the Athletics Scheme, the progressions in the various events would be discussed, and each Primary School would endeavour to reach a certain stage by the time the children were ready to enter the Secondary School. It is of little importance that all the Primary Schools should reach exactly the same stage in all events. What is important, however, is that the teacher in the Secondary School should know exactly what stage they have reached. By knowing this, much time will be saved; and grouping according to ability will be made much easier.

In this type of scheme it is essential that some form of record be passed from the Primary School to the Secondary School, and it is suggested that this should take the form of a general report plus a Standards Record Card, for which suggestions are given in Chapter Eleven.

It might be argued that this will mean considerable extra work, but if the job is to be done properly such a system is essential to success, and the conscientious and enthusiastic teacher of Physical Education will realise its value, not only to the teacher but to the child.

The personal record card, of course, will have to be maintained throughout the Secondary School, so that the child who intends to continue with athletics on leaving school can take the card along with him to whatever athletic club he joins.

In drawing up the scheme for the school group, there must also be considered the joint use of ground facilities.

Geographical location will play an important part in determining whether this can be done without completely disrupting both schools time-tables—but a little sympathy and

enthusiasm will usually overcome most obstacles. In urban districts, schools are usually fairly close together; in rural districts, the difficulties of each school in obtaining ground facilities are not quite so great. Further co-operation between schools in the group might be made in arranging joint demonstrations and the showing of Physical Education films.

Summarised, the values of the School Group Schemes for Physical Education are these:

(1) The schemes are practical ones based on the actual conditions in the particular group.

(2) All the responsible teachers know exactly what is being done in all the schools, and the work in the Primary Schools will definitely lead on to the work in the Secondary Schools.

(3) By liaison with local athletic clubs, the clubs and the schools will be able to appreciate each other's problems. Children who wish to continue with athletics on leaving school will already be in contact, through the school, with responsible organisations.

(4) The pooling of ideas and experience of the teachers will be of advantage to all. Lack of enthusiasm for a subject is often due to imperfect knowledge of the subject. By this system the more experienced man can pass on his knowledge to the less experienced for the general benefit of all the children in the group.

(5) The pooling of ground and apparatus facilities will tend to raise the standard of performance of the group as a whole.

(6) The Group Scheme will tend to destroy the parochial outlook (where such is present) of the individual school or individual teacher, who will be able to see the ultimate result of the work he has done with the children.

(7) The individual record cards for each child will ensure a minimum of duplication of effort, and will be invaluable for the post-school development of the child's athletic experience.

CHAPTER SIX

THE ORGANISATION OF ATHLETIC GROUP WORK

MANY years ago it was customary, particularly in the Physical Training lesson, for the teacher to take only one practice in, say, vaulting, with himself in charge. Thus with a class of thirty-six children, only one child performed at any given time, while thirty-five waited their turn.

This involved a great waste of time, and so Team Practices were introduced. The class was usually divided into four teams which, under the supervision of a child leader, practised previously taught skills. The teacher took charge of the practice involving most difficulty or danger, while at the same time he kept his eye on the other groups as they worked.

This Team Practice system had several advantages, the chief of which were :

- (1) More children were working and time was saved.
- (2) Greater variety, with consequent greater interest and enjoyment, was introduced into the lesson.

There were, however, several weaknesses in the general application of the system :

- (1) Teams were generally four in number, having from nine to twelve children in a group, and though this division enabled more children to be working at the same time, teams were still too large.

- (2) The teams were composed of children of varied capability and physique. This meant that practices or skills were too easy for some children and too difficult for others.

- (3) There was a tendency to insist on a child practising all

the group skills in one lesson. This meant in many cases that a child was only able to perform an activity once—and that single attempt might not be seen and, if necessary, corrected by the teacher.

(4) Leaders, in many cases, were not sufficiently skilled to be able to correct faulty performances in the skills or practices they were supervising.

(5) Insufficient thought was given to the preparation of material and space-planning of the group activities.

In the Organised Athletics period, whether in a school or club, the adoption of the Team or Group System is imperative, both for the provision of greater variety, interest and enjoyment, and for the organisation of the teaching of a properly co-ordinated system of progressive athletic practices and skills.

The weaknesses mentioned above, however, must be eradicated; and with this object in view, the following provisions are suggested as the minimum essentials for the full development of the system if it is to be of real value.

PREPARATION BY THE TEACHER OR COACH

The teacher or coach must have a comprehensive scheme covering the full period of time for which he or she is responsible for the coaching. Any lesson or coaching period should fit into its proper place in the complete scheme, and should not be a haphazard improvisation prepared at short notice. There should be no need to digress from the previously prepared general scheme.

In school, any athletics scheme prepared for one class or one year is of little or no use, as it is merely one portion of a jigsaw with all the other pieces missing. A scheme of athletics, to be fully comprehensive, must necessarily entail the liaison of not only the teachers responsible for the subject in any one school, but also the teachers in the School Group, as suggested in the previous chapter.

No teacher of history or geography or mathematics would

think himself competent to take a lesson unless he knew more about his subject than the children he taught, yet how many teachers take charge of athletics without being fully competent to do so? Twenty years ago such was possible, and some remarkable results were obtained by enthusiastic teachers working on trial-and-error or hit-or-miss methods.

To-day there is no need for any teacher interested in his subject to work by such methods. Organisers of Physical Education arrange courses in every school district, and it is to them in the first instance that the enthusiastic but inexperienced teacher should turn for advice.

Apart from the direct knowledge obtained by attending such courses, they provide the opportunity of meeting other enthusiasts for athletics as well as establishing connections with officials and coaches of local clubs catering for senior athletes.

Thus, by use of the Group Athletic Scheme and attendance at courses, the teacher will be enabled to see the complete athletic picture from the seven-year-old child doing low jumps over a rope to the finished performance of the international athlete.

The necessity for viewing the complete picture is, of course, not confined to the teacher in the school. It is just as necessary for the club coach to be fully acquainted with what is happening in schools, as it is for the teacher to know what is happening in the clubs—yet how many coaches attempt to make contact with the local schools? There is here ample opportunity for invaluable connections, and much can be learned by both sides.

THE SIZE AND FORMATION OF GROUPS

In the normal gymnasium or hall it has been found that it is often convenient to work with the class divided into four teams of from eight to twelve or more children per team, according to the size of the class.

This four-team system, unfortunately, has become so much a feature of Physical Training that it has been carried on in activities where, far from being a convenient arrangement, it has proved detrimental to effective work.

One of the reasons for the introduction of group work was to cut down to a minimum the 'waiting for a turn', and thus to allow a child to have more practices at any particular skill.

The more children who are working effectively under supervision the better. Ideally, there should be one teacher or coach to each performer. This is impossible in the normal school, because of limitations of qualified supervisory personnel, space and apparatus; but it is recommended that a group should not consist of more than eight performers; six would be even better.

In the Secondary Grammar School this may still involve a four-team system, though of course with these older children it may well be possible in many cases to reduce the number in each group to six or even four. In the Secondary Modern School the number of groups would be five or six, and a similar number would be required in the Primary School.

This reduction in the number per group, and the increase in the numbers of groups, automatically involves a difference in the personnel of any group from the team in which they did the first part of a Physical Training or Organised Games lesson.

It is suggested, therefore, that when the class splits up for group work, instead of having groups of children of varying capabilities as hitherto, the groups should consist of children of approximately the same standard of ability in the skills which they are to be called upon to perform.

This automatically involves careful selection not only of the children but also of the activities, and will entail considerable thought and administrative preparation on the part of the teacher. It will, at the same time, enable the teacher or coach to keep a watchful eye on, and give more attention to, the less-

skilled performers, for they are the children who need the extra attention and extra coaching.

By devoting *extra* time—but not *all* the time—to the less-advanced children, the general standard of performance will be raised. It must be remembered, too, that very often a child is backward in a particular activity *only* because he or she, through such things as absence, illness or poor or indifferent teaching, has not mastered the early skills or progressions in a particular event.

Before the groups can be organised according to ability, it will, of course, be necessary to check upon the standard of performance of each child. This should be done when the child first comes under supervision, though if the School Group Physical Education Scheme is functioning properly it should be possible for each child to appear at a new school with an Attainment Card showing his or her standard in the various branches of Physical Education.

If a child is backward in any particular group or groups of skills, these must be brought up to standard before any further progress is made; and it is possible to do this only by *grading* the groups according to ability and by giving them work which is suitable to their actual attainments.

It is useless to say that because a child is a certain age that he or she should be able to perform certain skills, and to go on automatically to the next progressions. If the child, on testing, cannot perform the skills, then he must be taught them. It is a waste of teaching time, and sometimes dangerous to the child to expect him to perform advanced skills if he does not know how to do the simple ones.

THE INTRODUCTION OF THE GROUP SYSTEM

Children are introduced to the idea of working in groups during the normal Physical Training period at a very early stage in the Primary School, so that, if the teaching has been good and there has been an average standard of discipline,

there should be no difficulty whatsoever in introducing group practices in the Athletics or Games period.

However, in some cases children seem incapable of working quietly and busily in groups under the supervision of child group leaders. This may be due to insufficient previous experience in this type of working, or to leaders who do not know how to control and supervise their groups, or to insufficient explanation or previous demonstration of the skills to be practised. It may also be due to a lack of interest in the activities selected, or an uninteresting presentation of them by the teacher.

If the fault is found to be due to lack of previous experience of working in groups, the only course left to the teacher or coach is to start at the beginning and introduce group working by the following suggested stages:

(1) All the class performs some individual practice under the direct supervision of the teacher or coach. This is really a 'class activity', and is the basis of group work, for normally all group activities are taught first as class activities. They are demonstrated and taught to the class as a whole before being practised in groups. The only exception to this general rule is when, owing to difficulty of performance or lack of apparatus, the new activity is taught to small groups in turn by the teacher or coach.

(2) The class divides into groups, all of which perform the same activity under the direct command of the teacher. By this stage the teacher will begin to find out the better performers, natural leaders, and children who are temperamentally capable of working without direct adult supervision. These children will then be organised into groups, and will begin to work on their own.

At this stage the value of stimulation and encouragement cannot be over-emphasised. Children should be given to understand that it is the privilege of the responsible and enthusiastic child to be able to work independently. Praise should be given

frequently, not only for meritorious performance but for genuine effort no matter how poor the actual performance of the task or skill involved.

(3) One or more groups work independently, while the remainder are directly controlled by the teacher.

(4) All groups work independently. Rarely will this stage be reached in practice, for in any class there will almost always be found children who are incapable of working without the direct and often firm control of the teacher or coach. These children are generally the most backward performers, and in any case, whether or not they are temperamentally suited to working without supervision, they are those who need most help—and who should receive it.

THE TRAINING OF GROUP LEADERS

The efficient working of the group system depends to a large extent on the capabilities of the group leaders. In the school they are, of course, children of the same age as those in the groups they lead. In the clubs this is not necessarily the case; generally it is not, but there is no reason why it should not be so.

In any class there are certain children who have quite easily recognised powers of leadership. They are usually leaders of the 'gangs' who chase round the playground during the morning and afternoon break, and who after school hours become leaders in voluntary organisations, such as the Scouts and Guides.

Though it is not essential for these group leaders to be the best performers in their groups, it is better if they are, and it is suggested that they should receive additional coaching. In any case, they must know the essential technique of the activities they will be called upon to supervise.

It will be necessary, therefore, for the teacher or coach to arrange special leaders' training periods. In the club this will have to be done in the evenings or at week-ends. In the school, provided that the head teacher is sympathetic, that the time-

table will allow it and that a tactful approach is made to the other teachers concerned, it will often be found possible for the teacher responsible for athletics to take a special Leaders' Training period during what would normally have been one of his non-teaching periods. Failing this, the period will have to be taken during out-of-school hours, generally at the end of the afternoon.

By experience, it has been found that if a Leaders' Club is formed considerable enthusiasm is raised, particularly if the members of the club are allowed to wear some distinctive form of badge and on appropriate occasions give a club display.

During the Leaders' Training period the teacher should demonstrate the activities they will be called upon to supervise during the following week. They must also be shown how to stand by if there is any danger in the activity, though, of course, the teacher himself would be in charge if there were more than the normal risk involved.

They must be given ample opportunity to practise under the direct supervision of the teacher, who must take every opportunity of coaching. During these periods use may be made of the many excellent athletic films and film-loops in order to demonstrate to the leaders the finished performance of any particular event.

Finally, the leaders must be 'briefed' on the apparatus they will require and the lay-out of their own activity in relation to the others going on at the same time. At all times they must be made to feel that they are responsible people doing a worthwhile job, and that the success of any coaching period is largely dependent upon the work they do under the guidance of the teacher or coach.

GROUP CHANGES

When the normal number of group activities was four, and particularly when working from the old 1933 Syllabus, many teachers were under the impression that it was essential for

each child to practise every activity each lesson. This was never the case, and there are many reasons why such a procedure should not be adopted.

During a thirty-minute lesson the maximum time which could be devoted to group activities was fifteen minutes. To attempt four activities with, say, ten children per group gave on an average three minutes per practice, or eighteen seconds for each performer, which is useless. Some children never got a turn at an activity, or if they did, it was done so hurriedly that it was probably done badly; and, what was worse, if the teacher did not happen to see it, the only thing achieved by the child in the lesson was a faulty performance.

Under the conditions described above, it would be logically possible for a child never to do a single skill practice during the whole of his or her school life. Therefore, it is suggested that in the Organised Games or Athletic period not more than one change need be made during a single session. Not only will this give more time for individual practice at a skill, with the consequent greater chances for correction of faulty performance, but it will also simplify, particularly in the more advanced stages, the planning of activities for the groups which are graded according to ability.

SPACE PLANNING FOR GROUP WORK

Even if all the above-mentioned recommendations are carried out, group work can still not be carried on successfully unless there is considerable thought given to space-planning, i.e. arranging the group activities within the working space, indoors or outdoors, in such a manner that each activity has the maximum space possible consistent with good class control, and each individual in the group has the greatest possible space in which to work.

Outdoor planning is simple compared with indoor planning, which should be necessary only during inclement weather;

nevertheless, much time and effort can be wasted if the ground is not prepared in the proper manner. (See Chapter Seven for suggestions on the planning of outdoor athletic facilities.)

Much valuable work *can* be done indoors in the normal hall or gymnasium with even large numbers. Below is given an actual lay-out used during the winter months with fifty to sixty members of a well-known athletic club in a gymnasium with a floor space approximately seventy feet long by thirty feet wide. It was by no means ideal; nevertheless, some valuable practices were done.

<i>Group 'A'</i> Slow-motion Baton Changing		<i>Group 'B'</i> Sprint Starts, using Starting-blocks
<i>Group 'C'</i> Individual Practice of Exercises for strength, suppleness, etc	<i>Group 'D'</i> High Jump Group Exercises and actual practice in Jumping, using Jumping Stands and Mats for landing	<i>Group 'E'</i> Throwing Group (1) Javelin (2) Shot (3) Discus
<i>Group 'F'</i> Hurdles Practices		

DIAGRAM 1—INDOOR ATHLETIC GROUP WORK WITH LARGE NUMBERS

Notes on Groups

Group 'A'.—The detailed technique of baton passing for relays was practised in slow motion. At a later stage Groups 'A' and 'B' combined and the passing was done at a reasonable speed.

Group 'B'.—This group practised starting from metal starting-blocks. Here, as above, the emphasis was on technique and adjustment of the blocks to the individual performer.

Group 'C'.—Here each athlete in the group attempted to overcome his individual physical deficiencies. Some were strengthening weak abdominal muscles by means of special abdominal exercises, others were doing medicine-ball work, weight training, etc.

Group 'D'.—This consisted either of already proficient jumpers improving particular aspects of their technique, or of novices learning the basic skills of Western Roll, Eastern Cut-off and the Straddle Jump. The bar was not usually higher than 4 ft. 6 in. to 4 ft. 9 in.

Group 'E'.—The Throwing Group was usually divided into three sections, all of which did some medicine-ball exercises before going on to their particular event.

Javelins were used for demonstration and practice, but no attempt was made to throw them.

In the shot and discus, the main emphasis was on teaching the technique of the event: swings, movement across the circles, etc. Here again no attempt was made to throw in either event.

A throwing net has been devised which will allow the Shot, Discus and Javelin to be thrown indoors without the slightest danger to either personnel or equipment.

Group 'F'.—Progressive Hurdles Practices were done consistently, and resulted in a marked improvement in performance once the athletes were able to get out on the track.

In Primary Schools, the activities are practised which ultimately lead to the major events mentioned.

The arrangement for group work outdoors is relatively simple compared with indoor work, as there are generally few limitations with regard to space.

The two main factors to be considered are:

(1) Ensuring that each group has ample space in which to work, though the groups must not be so far apart that the teacher or coach is unable to control them as a class.

(2) That all safety precautions are taken, particularly in the throwing groups in which, unless there is good discipline and strict control, serious accidents can arise.

ORGANISATION WITHIN THE INDIVIDUAL GROUP

As was stated at the beginning of this chapter, one of the objects of group work is to increase the number of performers and to decrease the number of those who are waiting for a turn to perform. In the Primary School where simple skills are being attempted, the aim should be to get as many children working at the same time as possible.

There is still in schools a marked tendency to use the minimum amount, instead of the maximum amount, of apparatus available. For instance, one of the basic jumping exercises used by young children is a downward jump from a height with support. This is usually done from a chair. To be absolutely safe, one person supports the chair to prevent it slipping, one child jumps from the chair, while a third either holds the hands of the performer or stands in front in case the jumper slips. Usually only one chair is used, which in a group of eight means that five children are waiting for a turn. If two chairs are used, six children are doing something objective while only two are now waiting.

The same principle should apply in the Secondary School and the Athletic Club where more advanced skills are done; this is particularly so during the summer term, when it is possible to get out on to a field and to use the high jump and long jump pits as well as a full range of apparatus. While it is not possible to have one long jump pit and one high jump pit for every two or three performers, it is possible to have every child or athlete either waiting a minimum amount of time or while waiting doing something objective. Even while waiting for a turn, he or she should be observing the performances of others,

and listening to the coaching hints given by the teacher or coach or leader of the group.

In the Secondary School, as in the Primary School, there is always the tendency to take out, say, one shot, one javelin and one discus. Ideally there should be a minimum of one between two performers, and in practice it is suggested that the following minimum amount of athletic apparatus should be available.

(1) Eight javelins (metal ones save breakages and replacement costs).

(2) Four or six shot (2 at 6 lb., 2 at 8 lb. and 2 at 12 lb. for Secondary Grammar; or 2 at 6 lb. and 4 at 8 lb. for Secondary Modern).

(3) Six discoi.

(4) Two hammers (1 at 6 lb., 1 at 8 lb. for Secondary Grammar; or 1 at 8 lb., 1 at 12 lb.).

(5) Ten or more hurdles (adjustable height). (See Chapter Nine on suggestions for events suitable for schools.)

In addition, high jump posts and laths are needed in all schools, while the Secondary School could, with advantage, have pole vault posts, laths, jumping poles and a spring board. (See section on the Long Jump.)

Schools which have difficulty in obtaining this apparatus should consult their local Organiser of Physical Education, who will be only too willing to help and suggest where the necessary items can be obtained.

Assuming that sufficient apparatus is available, the following diagrams suggest group arrangements whereby the maximum number of performers are working objectively.

In Diagram 2 it will be seen that all members of the group except two are performing some task. Only two are waiting to jump, and they, like all the others, should be listening to the leader's or coach's advice and watching the performance of the person actually jumping.

In the diagram it is suggested that the members of the

group change round informally after each jump, but, alternatively, the changes could be made after three or more jumps have been performed, or when the three jumpers have done three jumps each. The actual time of change-over is not of prime importance; what is important is that everyone is objectively employed.

Though every person is given some specific job to do, it must be stressed that the atmosphere within the group must be

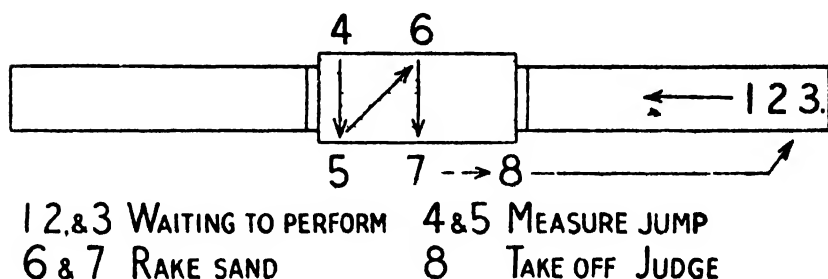
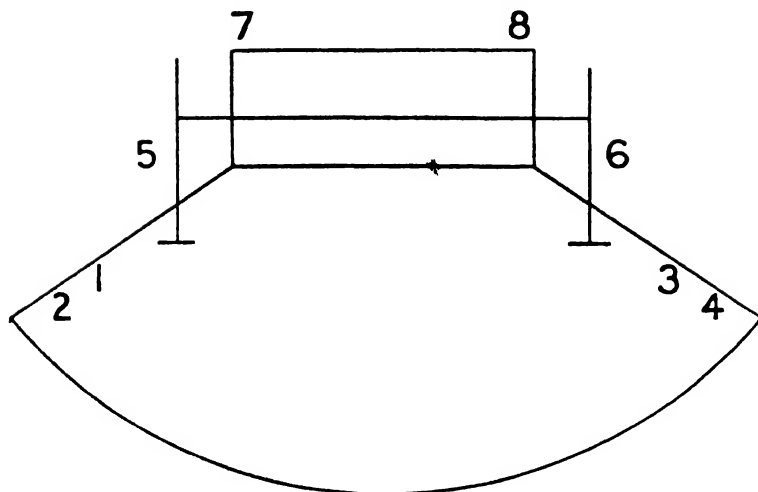


DIAGRAM 2 - LONG-JUMP GROUP ORGANISATION

friendly and not too formal. There must not be any regimentation.

Again, in Diagram 3 members of the group not actually performing are doing something objective. Nos. 5 and 6 are looking after the bar, and, under supervision from the leader, measure, if necessary, the height of the jump. Nos. 7 and 8 rake up the sand into a mound and not level, as is the usual school practice. (This makes for softer landing.) The change-over can take place when all four performers have had, say, three jumps. (Unless the practice is competitive for height, which will not usually be the case in a group practice, the change-over can take place when all performers have mastered the particular skill being attempted; or, alternatively, a change can be made whenever one jumper has been successful. His or her place will be taken by one of the non-jumpers.) The teacher or coach



1,2,3,4, PERFORMERS

5,6 LOOK AFTER BAR

7,8 RAKE SAND

DIAGRAM 3 HIGH-JUMP GROUP ORGANISATION

positions himself so that every phase of the jump can be observed.

Similar arrangements can be made for both Shot and Discus practice. *There should be the strongest emphasis placed on safety in these and all throwing events.*

The children waiting to perform should not be allowed to move in front of the performers until the shot or discus (or javelin) has actually touched the ground, and on no account should the apparatus be thrown back. While waiting to perform, they should watch (and be prepared to criticise if necessary) the performance of their partner.

By watching they not only learn but also assist in the safety precautions, as they then should be ready to avoid any badly thrown shot or discus (particularly the latter).

All the events have not been covered and the arrangements given are merely suggested ones. Local conditions will cause variations in the organisation of group work, but whatever the conditions, the main principle will still apply.

Group work should aim at giving the maximum amount of controlled and objective work to the maximum number of performers for the maximum amount of time.

CHAPTER SEVEN

THE PLANNING AND LAY-OUT OF SCHOOL ATHLETIC FACILITIES

As this book is concerned with the teaching of athletics, it is not proposed to deal with the lay-out of grounds for such games as Cricket, Soccer and Rugby, but to confine our suggestions to the facilities essential for the efficient teaching of athletics.

These essentials can be divided into two main headings:

(a) *Permanent Facilities*.—These can be used in suitable weather conditions all the year round:

PRIMARY SCHOOLS:

- (i) Long-jump pit.
- (ii) High-jump pit.
- (iii) Permanent marks for distances between 50 yards and 150 yards.

SECONDARY MODERN, SECONDARY GRAMMAR SCHOOLS AND CLUBS:

- (i) Long-jump pit.
- (ii) High-jump pit.
- (iii) Sunken sand-pit (see section on Long jump).
- (iv) Pole-vault pit.
- (v) Discus, Shot and Hammer circles.
- (vi) Permanent marks for distances between 100 and 440 yards.

(b) *Temporary Facilities*.—These will consist mainly of tracks suitable for various-sized fields, and will be normally marked out only during the summer term.

PERMANENT FACILITIES

In providing permanent facilities two factors must be considered: (a) the condition of the individual facility and (b) the siting of that facility in relation to the particular space available and to the other facilities provided within that space. (This problem will be discussed later in the chapter.)

For the moment, then, let us consider the construction of jumping pits.

Wherever it is possible, and particularly in the Secondary Modern and Secondary Grammar School, these should conform to the standards laid down by the A.A.A. In the Primary Schools this conformation to A.A.A. standards is not essential, but even though the sizes may differ, one cannot do better than follow the official suggestions for their construction, which are as follows:

Long-jump Pits (A.A.A. Specifications)

Pit.—Must be not less than 9 ft. wide and 23 ft. long, but for international competition 9 ft. wide and 27 ft. long. Excavate to depth of 2 ft., and fill as for high-jump pit (see pages 56–57). A space 3 ft. long should be left between the pit and take-off board. This ground should not be excavated, and should be dressed with $\frac{1}{2}$ in. of damp sand.

Cinder Run-ups should be 4 ft. or 4 ft. 6 in. wide, and not less than 42 yards long, and preferably 45 yards long. Excavate and fill as for high-jump run-up. If practicable, a separate run-up should lead to each end of pit, and be parallel with 'back' straight of the running track (i.e. not alongside 100 yards 'straight').

Take-off Board must be 4 ft. long, 8 in. wide, 4 in. deep and preferably made of Oregon Pine or Douglas Fir. It must be sunk flush with cinder run-up, fixed rigidly in the ground and painted white.

Measure.—If possible along each side of the pit fix a board, i.e. 'wood wide' with a metal strip securely fixed to top edge

denoting distances in feet and inches ($\frac{1}{2}$ in. and $\frac{1}{4}$ in. to be marked) measured from the front edge of the appropriate take-off board. The measure(s) must be at right angles to the stop-board and parallel with each other.

Suggested Modifications for Primary Schools.—The pit need not be longer than, say, 15 ft., and 6 ft. wide, and the space between the pit and take-off board can be increased to 5 ft.

A cinder run-up is not essential, but if provided can be considerably shorter than 42 yards.

The measure alongside the pit, though extremely useful, is by no means essential.

In the Junior School the pit is only really necessary for the providing of a safe landing when skills are being practised.

It must be remembered that both Long-jump and High-jump pits could possibly be constructed along the edge of a large playground if no field facilities are available.

High-jump Pit

Pit.—Not less than 16 ft. long by 12 ft. wide. Excavate to depth of 2 ft., and fill with sand or fill with 4 in. coarse clinker ($2\frac{1}{2}$ -in. gauge), 4 in. fine clinker ($\frac{3}{4}$ -in. gauge), and 1 ft. 4 in. sand. 'Take-off side' of pit should be edged with creosoted boarding $1\frac{1}{2}$ in. thick and 12 in. deep (2 of 6 in.). Top of board must be flush with run-up. Edging should be fixed by corner pegs 3 in. \times 3 in. \times 3 ft., and intermediate pegs (3 in. \times $1\frac{1}{2}$ ft.) 3 ft. apart. Other sides will probably need edging placed *so as not to hurt athletes*, i.e. top of board about 1 in. below surrounding turf.

Bases for Standards.—Two concrete slabs 12 ft. apart at take-off corners of pit—18 in. square \times 6 in. deep, finished flush with take-off and centred on ends of take-off edging at edge of pit. (Under the rules the standards must be at least 12 ft. apart.)

Run-up.—Cinder 'run-up' or approach to take-off edge of

pit must be level and flush with top of take-off edge of pit. This run-up should be semi-circular and have a radius of not less than 50 ft. and preferably 60 ft. Excavate 11 in. and fill with 3 in. coarse clinker of $2\frac{1}{2}$ -in. gauge; 3 in. fine clinker of $\frac{3}{4}$ -in. gauge; 3 in. fine cinders mixed with 15 per cent. riddled burnt loam and 5 per cent. pulverised peat well mixed. Run-up should be edged with 6 in. \times $1\frac{1}{2}$ in. creosoted sawn edging-boards sunk so that top of boards is level with turf surrounding the semi-circle, but boards are 4 in. below top of run-up, leaving 2 in. above track surface. Boards should be fixed firm by creosoted pegs 2 in. \times $1\frac{1}{2}$ in. and 18 in. long set 4 ft. apart.

Primary School Modifications.—The concrete bases for the standards can be dispensed with, as can the cinder run-up. Alternatively, the run-up can be made smaller—with, say, a 20 ft.–30 ft. radius. The pit should not be less than 12 ft. square.

It is suggested, also, that for all occasions the pit should have more sand than is usually provided in this country. Instead of there being only sufficient to rake level with the take-off, much more can be provided and raked up from the sides towards the middle of the pit.

Sunken Sand-pit.—Wherever local conditions allow, particularly in the Secondary Modern School, the Secondary Grammar School and the Club, a sunken sand-pit will be found invaluable in the teaching of Long Jump. (See chapter on Long Jump, pages 179–81.)

If a cinder run-up is provided it need only be quite short, say 20–25 yards.

Pole-vault Pit

Pit.—Must be at least 12 ft. wide and 15 ft. long and excavated to depth of 3 ft. It should be filled with 4 in. coarse clinker ($2\frac{1}{2}$ -in. gauge), 4 in. fine clinker ($\frac{3}{4}$ -in. gauge), 2 ft. 4 in. sand. A stop-board must be fixed between the run-up and pit. Specification as for high-jump stop-board.

Cinder Run-up.—Must be level, 4 ft. or 4 ft. 6 in. wide and at least 42 yards long. Excavate and fill as for high-jump run-up.

Concrete Bases for Standards (or Uprights). (The standards must be at least 12 ft. apart.)—Two concrete bases 5 ft. 6 in. \times 1 ft. 6 in. \times 6 in. should be placed at end of pit, laid 2 ft. 9 in. leading up to pit alongside run-up and 2 ft. 9 in. alongside

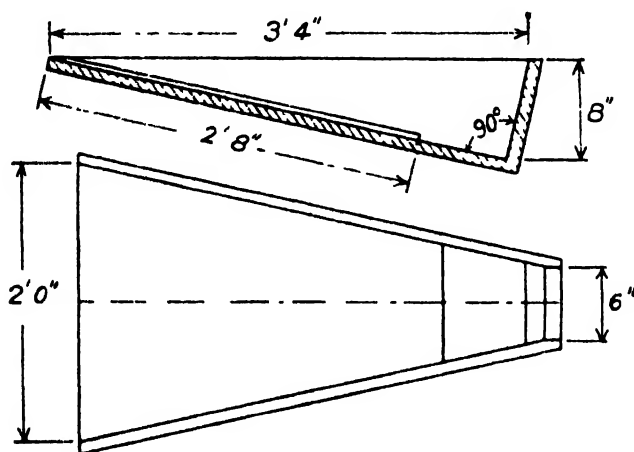


DIAGRAM 4 -- POLE-VULT BOX SPECIFICATION

edge of pit. The top of the bases must be flush with run-up and top edge of stop-board.

Wooden Box in which to plant the pole must be let into the ground, the front edge of the box being flush or level with the run-up and firmly fixed in the ground. It is preferable for the box to be anchored to an oblong concrete block 15 in. deep. The box must be 3 ft. 4 in. in length, 2 ft. in width at front end and tapering to 6 in. in width at the stop-board, where it must be 8 in. in depth. The angle inside the box between the base and the end of the box must be 90 degrees. The bottom of the

box must be covered on the inside to a length of 2 ft. 8 in. with a piece of No. 10-gauge sheet zinc (or iron).

Discus, Shot and Hammer Circles

Discus.—Inside diameter must be 8 ft. 2½ in.

Weight and Hammer.—Inside diameter must be 7 ft. The circle may be indicated by a white ring marked on the turf, but it is preferable if the circle is made of band iron or steel or wood. The inside of the circle should preferably be excavated and filled as for 'run-ups', the cinders to be packed hard and firm. The surface of the circle should be ¾ in. lower than the ground outside the circle.

The top of the circle must be painted white and must be flush with the ground outside the circle. Metal circle band shall be ¼ in. thick and 3 in. in depth. Wood circle band shall be 3 in. thick and 2 in. in depth. A white line should be drawn across the centre of the circle, and extended outside the circle, dividing it into front and rear halves.

For the Discus and Hammer a 60-degree sector must be marked in white on the ground outside the circle but taken from the centre of the circle. For the weight a sector about 65° should be marked. (N.B.—Valid throws must fall within this sector.)

Stop-board for Weight.—A curved stop-board of wood, painted white, 4 ft. long, 4½ in. wide, 4 in. high, shall be fixed in the middle of the circumference of the front half of the circle. The board shall curve so that the inside edge coincides with the inner edge of the circle, and shall be fixed firmly to the ground.

Permanent Marks

A lot of time and measurement is saved if permanent markings are made on the sports field for whatever distances are most used in the particular school concerned. These marks can be made in various ways, but the following methods are suggested:

Markings on Grass.—(a) By the use of creosote. (This has to be renewed at fairly frequent intervals.)

(b) By small 'V'-shaped trenches filled with light-coloured sand. These trenches have to be refilled at frequent intervals, as the sand dries and blows away.

(c) By means of small posts with or without a small notice-board attachment. The boards should be varnished to resist weather.

It is also useful to indicate permanently the centres required for the marking out of the corners of the track. The radius will differ according to the space available on the field. (See page 62.)

The best way for this to be done is to insert in the ground at the required spot a small thick glass jar or tin with a brightly painted screw-top lid which has been well greased. In the bottle should be placed a small label or slip of card or plastic material with the length of the radius required written on it with waterproof ink or paint.

Ideal types of bottles are those such as are used for fish or meat pastes or sauce, as these are usually very strongly made of thick glass. Even so, they should be sunk to just below ground level.

Markings on Cinder-tracks and Permanent Grass-tracks

Cinder-tracks, unfortunately, are at present extremely rare in schools, but it is to be hoped that, with the apparent growing interest in athletics, the day is not too far distant when a properly prepared athletics track will be considered as essential to the Secondary Modern and Secondary Grammar School as are the hall and playground to-day.

For those schools which have permanently marked-out grass-tracks, the permanent markings suggested below can apply equally to the cinder-track.

Much time and labour will be saved if the following points are marked on the grass-track by labels or sunken bottles, and

on the cinder-tracks by stamped zinc or aluminium labels or discs nailed to the edging-boards. (The letter-stamping machines to be found on railway stations or seaside promenades can be used to produce good labels, which can be nailed to edging-boards or strong, wooden, creosoted stakes.)

(1) Starts and finishes of races from 50 yards to 100 yards run on the straight. (*Note*.—Both sides of the track should be marked, so that all lines are drawn at right angles to the track.)

(2) Staggered start positions for races involving running round a curve.

(3) Hurdle positions. These may involve quite a large number of markings, particularly in Secondary Grammar Schools where there may be an age-range of seven years.

(4) Take-over starts for relays other than shuttle relays.

Fixing all these positions will involve considerable initial work, but if the track is used quite frequently considerable time and trouble will ultimately be saved, as no future measuring will be necessary.

Methods of Marking Temporary Tracks

Ideally, a four laps to the mile track, with not too sharp bends, should always be laid down, but often this is impossible owing to limitations of ground area available.

In Primary Schools, a quarter-mile track is not necessary, and it may be possible to run all races on the straight, or with one slight curve only.

Using the key-plan shown in Diagram 5, the method of laying down a four laps to the mile track is as follows:

(1) Lay down the base-line AB.

(2) Form the rectangle ABDE.

(3) From the centres of BD and AE describe semi-circles.

The following measurements used with the method given above will produce tracks of four laps to the mile, though the

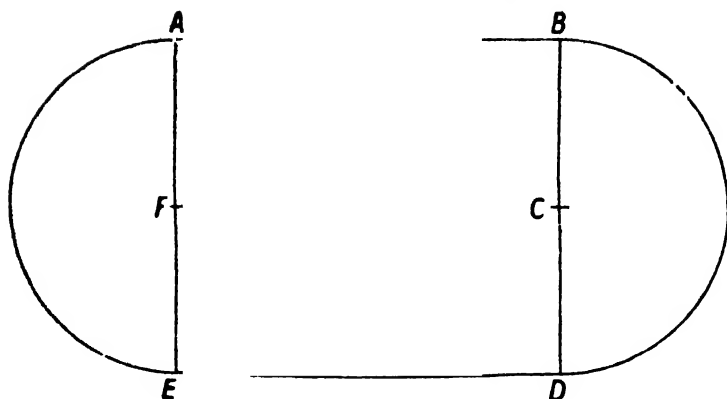


DIAGRAM 5 FOUR LAPS TO THE MILE TRACK

first three given are recommended if sufficient width is available on the ground, since they give tracks with not too sharp corners.

<i>Base Line AB</i> yards	<i>Width BD</i>		<i>Radius of Semi-circle</i>	
	<i>ft</i>	<i>m</i>	<i>ft</i>	<i>m</i>
75	274	11	137	5½
80	265	2	132	7
90	216	3 ² (approx)	123	17 (approx)
100	227	0	113	6
110	207	11	103	11½
120	188	10	94	5
130	169	9	84	10½
140	150	8	75	4

If the space available is not suitable for any of the tracks given above, it may be possible to fit in either a 330-YARD TRACK or ONE OF FIVE LAPS TO THE MILE.

The necessary dimensions are given below :

	<i>Base Line AB</i>	<i>Width BD</i>		<i>Radius of Semi-circle</i>	
	<i>yards</i>	<i>ft.</i>	<i>in.</i>	<i>ft.</i>	<i>m.</i>
FIVE-LAP TRACK	50	238	8	119	4
330-YARD TRACK	45	227	2	113	7

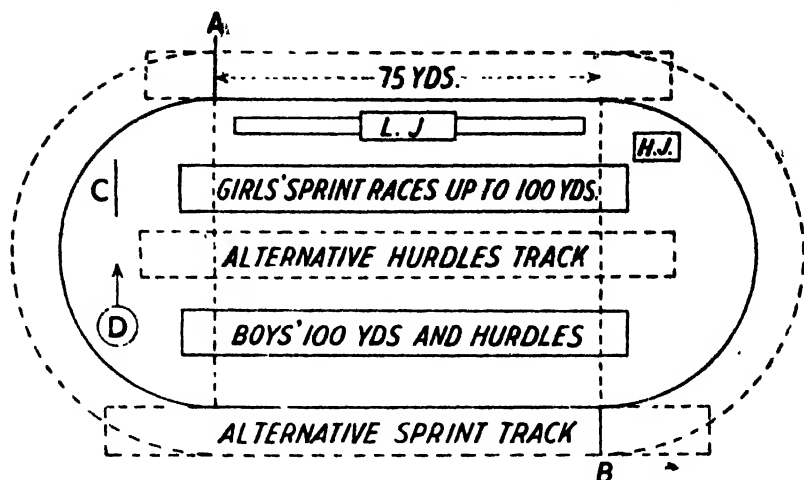


DIAGRAM 6. --A FOUR LAPS TO FILL MILE TRACK

With sprinting facilities for boys' and girls' sprints to be run simultaneously.

- (A) Start of 220 yards. Staggered start.
- (B) Finish of 220 yards, 440 yards, 880 yards and 1 mile. Start of 440 yards, 880 yards and 1 mile.
- (C) Space for Cricket Ball and Javelin when sprints have been concluded.
- (D) Shot and Discus after sprints concluded. Alternatively Shot could be put in direction shown by arrow.

Track measurements are always taken 12 in. from the inside edge of the track, and all the figures given above allow for this. Track lanes are normally 4 ft. in width, but in Primary and even in Secondary Modern Schools if space is not available, these can be reduced.

Suggested Track Lay-outs

In the chapter on the Organisation of an Athletic Meeting it is suggested that in meetings where both boys and girls are taking part, much time could be saved if there were two sprint tracks, one for the boys and one for the girls.

In Diagrams 6, 7 and 8 three suggested lay-outs for tracks of various sizes are shown. These, of course, can be modified at

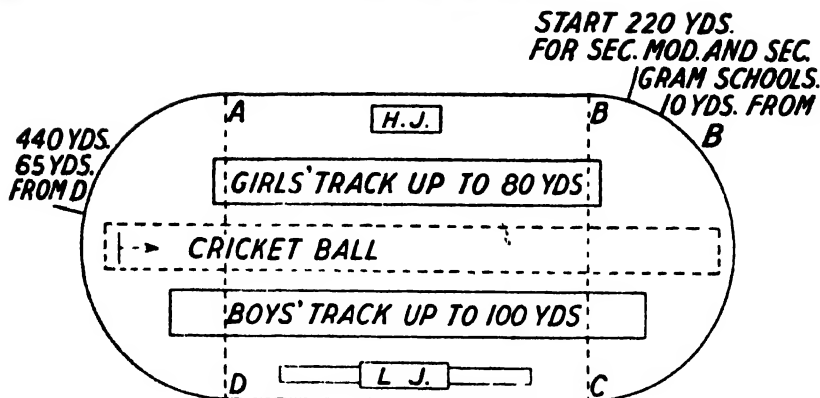


DIAGRAM 7. TRACK OF 330 YARDS

With facilities for boys' and girls' events to be run simultaneously (Primary School Adaptation).

(a) As in the Primary School no race exceeds 150 yards, it will not be really necessary to mark out the whole track.

(b) For Secondary Modern and Secondary Grammar Schools a 120-yards hurdles track will just fit in down the centre of the arena, as shown by the dotted lines.

(c) An obstacle course can be made along the centre of the arena, and the cricket-ball event can then be taken on either the girls' or boys' sprint tracks when these events are concluded.

will to suit local conditions. The main practical differences will probably be in the positions of long-jump and high-jump pits. As the school ground will almost certainly be used for winter games, the jumping pits will not be able to be sited in the positions shown, but will more likely be put on the extreme edges of the area.

In the first stages of planning the lay-out of any school sports facilities, it is advisable to obtain a plan of the playing space available (which can be obtained from the architect's department of the responsible authority).

Cut out thin cardboard templates to scale of the pitches, cricket tables, tracks, etc., desired, and then try to fit them into the area shown on the plan. Slight modifications may have to be made, but once they have been juggled into position,

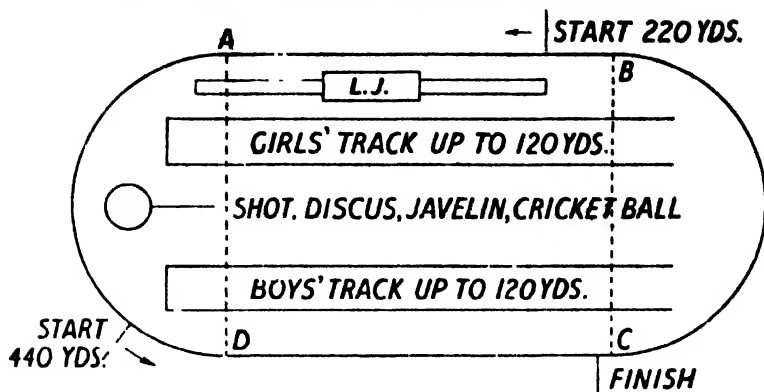


DIAGRAM 8. - TRACK OF FIVE LAPS TO FULL MILE.

With facilities for boys' and girls' events to be run simultaneously.

- (a) This track is capable of adaptation for various programmes.
- (b) The track length is actually 352 yards.
- (c) The start of the 220 yards is 6 yards from 'B'. The start of the 440 yards is 38 yards from 'D'. The start of the 880 yards is at point 'A'.
- (d) The high jump can be sited opposite the long-jump pit, or the one pit can be used for the two events.

the actual pitches can be marked out on the ground with far less trouble than by going out on to the ground in the first case with a tape measure and a rough idea of the possibilities of the space available.

By having separate high-jump and long-jump pits, both these events can go on simultaneously. Space is also available in the centre of the arena for an obstacle course or a separate hurdles track. The track shown can, of course, be adapted in many ways to suit the requirements of the programme of the individual school.

METHOD OF MARKING STAGGERED STARTS

In all races up to and including 440 yards each competitor should use a separate lane, and where races are not run on a straight course, the starting-line must be staggered to ensure that each competitor runs the correct distance.

The following method for marking out the starts round the track is recommended, the start and finish of the 440 yards race being exactly midway

along one straight. The following instructions are based on a track with 4-ft. lanes.

Lanes.—These should be exactly 4 ft. wide, the measurement being taken from the *outside* edge of one marking line to the *outside* edge of the next line, working outwards from the wooden, concrete or chalk border of the track.

Intermediate Distances.—First mark in chalk the starts in the inside lane for 440 yards and 220 yards (as the measurement on the inside lane is taken at 12 in. from the track border, the correct distance *on the border* for the full 440 yards is 437 yards 2 ft. 8½ in. The inside lane should therefore be marked at 218 yards 2 ft. 10½ in. for 220 yards and, if 330- and 110-yard marks are required, at 109 yards 1 ft. 5 in. and 328 yards 1 ft. 3½ in.)

Staggered Distances for 440 Yards Start.—Measure from the *continuation of the scratch line in the first lane* the following distances for Lanes 2 6, and mark the start lines, taking the measurements 8 in. from the outside edge of the line marking the inside of the lane.

Lane	2	3	4	5	6
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
	23 0½	48 2	73 3½	98 5½	123 6½

Staggered Distances for 220 Yards Start.—Measure as before but with the following distances:

Lane	2	3	4	5	6
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
	11 6½	24 1	36 7½	49 2½	61 9½

Staggered Distances of 330 Yards and 110 Yards Start (440 yards relay).—Measure as before but with the following distances.

Lane	2	3	4	5	6
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
1st Take-over					
330 yards	17 3½	36 1½	54 11½	73 10	92 8
3rd Take-over					
110 yards	5 9	12 0½	18 4	24 7½	30 10½

The foregoing measurements are correct for all 440-yard tracks with two equal semi-circular bends where 4-ft. lanes are used.

On some school tracks it may not be possible to have 4-ft. lanes, and these may have to be reduced to 42 in. or 36 in. or even 30 in. In such cases the figures below will be used.

42-IN. LANES

Lane	2	3	4	5	6
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
440 yards	19 10½	41 10½	63 10½	85 10½	107 10½
330 yards	14 11	31 5	47 10½	64 4½	80 10½
220 yards	9 11½	20 11½	31 11½	42 11½	53 11½
110 yards	4 11½	10 5½	15 11½	21 5½	26 11½

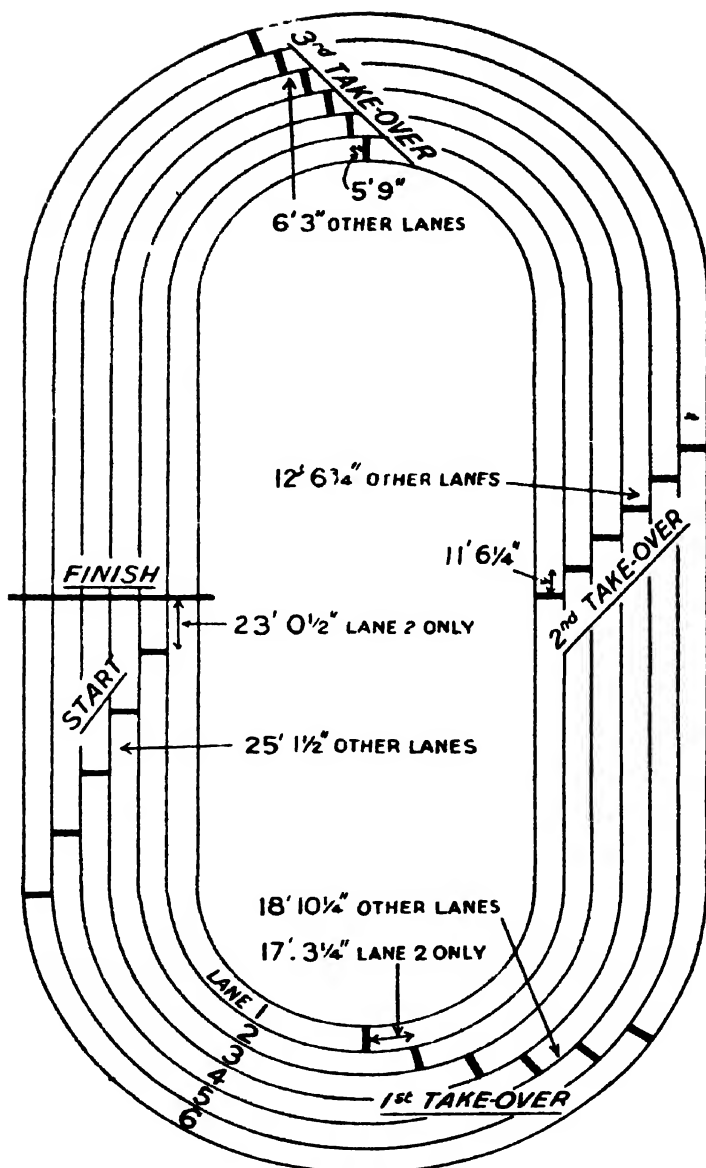


DIAGRAM 9.—METHOD OF MARKING STAGGERED STARTS

36-IN. LANES

<i>Lane</i>	2	3	4	5	6
	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
440 yards	16 9	35 7½	54 5½	73 3½	92 1½
330 yards	12 6½	26 8½	40 10½	54 11½	69 1½
220 yards	8 4½	17 9½	27 2½	36 7½	46 0½
110 yards	4 2½	8 10½	13 7½	18 3½	23 0½

30-IN. LANES

<i>Lane</i>	2	3	4	5	6
	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
440 yards	13 7½	29 3½	45 0½	60 8½	76 5½
330 yards	10 2½	21 11½	33 9½	45 6½	57 4
220 yards	6 9½	14 7½	22 6½	30 4½	38 2½
110 yards	3 4½	7 4	11 3½	15 2½	19 1½

N.B.—Where lanes are used for relay racing, lines 11 yards before and 11 yards after the start lines *in each lane* must be marked for the take-over areas.

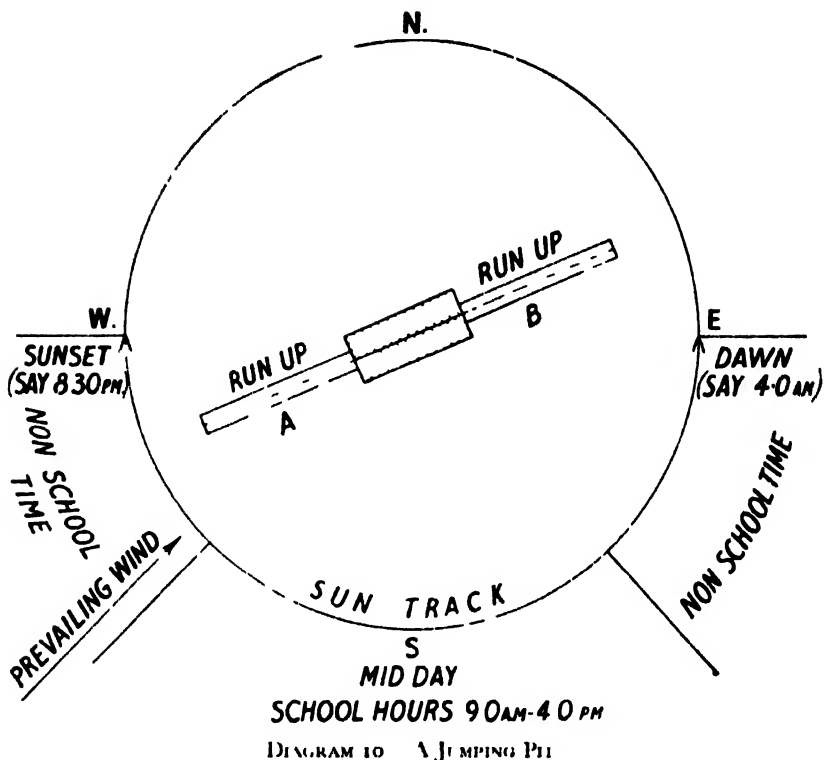
Permanent Siting of Jumping Pits

It may not always be possible to site the jumping pits as shown in the preceding track lay-outs, and more often than not they will have to be sited somewhere around the perimeter of the school field. In choosing these permanent sites, certain factors should be considered.

(1) *Their Position in Relation to the Prevailing Winds*.—If it is only possible to have a Long-jump pit with one run-up it should be made so that the competitor runs with the prevailing wind behind him. It may be made at right angles to the wind, but it should never be so placed that the performer has to run into the prevailing wind.

It should be noted, too, that it may be possible to construct pits so that they have building shelter from wind.

(2) *Their Position in Relation to the Sun*.—This factor is probably even more important than the wind, for though winds change from day to day and sometimes from minute to minute, the sun's course is to all intents and purposes constant. The run-ups should therefore be made as near as possible at right angles to the sun.



As the prevailing wind in the British Isles is south-west, the above statement may appear to contradict the statement made in the paragraph above, but if the pit is sited as shown in Diagram 10, a workable compromise is effected.

It will be seen from the diagram that the only effective hours are between 9 a.m. and 4 p.m. As most schools games or athletics periods are taken during the late morning or, more frequently still, during the second half of the afternoon, the run-up 'A' is almost ideally sited. During the morning period, if there is no wind, run-up 'B' will avoid sun-glare.

(3) *Drainage*.—On sloping fields the drainage must be

considered, for if the pits are made at the foot of the slope, they may become waterlogged and rendered useless for some months in the year.

(4) *Position in Relation to Trees*.—The pits should not be made too near trees, as during autumn, unless they are cleaned daily, the sand will tend to become clogged with leaves and slime.

(5) *Slope*.—If the field is on a slope, the run-up should be so made that it is either at right angles to the slope (it can be made level with slight excavation) or down the slope. A school-boy or schoolgirl athlete should not be made to run uphill for a jump.

It may be impossible to site a pit which allows for all the above factors. What is important, however, is that pits *should* be constructed, and these factors *should* be considered if the best advantages are to be obtained from them.

CHAPTER EIGHT

THE HYGIENE OF ATHLETICS

In any comprehensive scheme of athletics, questions of personal hygiene must figure prominently although, unless hygiene is taken as a separate time-table subject and the teacher responsible can devote a series of lessons to this very necessary aspect of Physical Education, most of the teaching and instruction given will be incidental in nature.

During the organised athletic period when the weather is inclement, however, definite talks should be given on the subject. The field, of course, is an extremely wide one, and it is obviously impossible in one chapter to deal with the subject except in outline.

In the Primary School, whatever instruction is given will have to be simple and direct both in subject and treatment. In the Secondary Modern School, and more particularly in the Secondary Grammar School, a more detailed and more advanced treatment may be necessary.

During the school life of the child the two aspects of hygiene to be dealt with are:

- (1) Personal athletic hygiene.
- (2) Clothing and footwear.

Brief notes and references are given where necessary so that the teacher, and in some cases the child or adolescent, may follow up with more comprehensive reading on the subject.

PERSONAL CLEANLINESS

Small boys—and quite big boys—often seem to have a horror of soap and water. Though in many cases talks on personal

hygiene should first be given to parents, and by them to their children, many children, nevertheless, come to school in an unhygienic condition, and something has to be done about it by the teacher. The immediate remedy is to send the child along to the cloakroom to wash; the lasting remedy is surely to explain the necessity for washing.

The value of regular baths should be stressed, as also the equally important necessity for clean towels, sponges and face-cloths; and, what is so often neglected, the need for keeping wash-basins and baths in a spotless condition.

Much lip service has been paid by people with so-called spartan habits to the value of *cold* baths. These more often than not give a greater shock to the body than a benefit, and nothing could be more uncomfortable than lowering one's body gently into a bath of cold water in the average English bathroom. But a tepid (76–78° F.) or tepid-cold bath (61°–75°), or tepid-cold shower, does have a tonic effect upon the body. Similarly, very hot baths are not to be encouraged.

The cleanliness of the school showers must also not be forgotten, particularly if they are provided with wooden duck-boards. Unless these are kept scrupulously clean by frequent washings with disinfectant and by high-powered hosing, they become instrumental in the spreading of athlete's foot and verrucas.

The first complaint can be dealt with quite **easily** if caught in its early stages (the first symptoms are usually a peeling of the skin between the toes). The feet should be sponged night and morning with surgical spirit (which can be obtained from any chemist), and then lightly powdered, until the condition disappears. If this treatment does not result in an improvement or cure, the doctor should be consulted.

Verrucas, the early symptom of which is a prickling sensation in the spot where the verruca is located, demands the immediate attention of a chiropodist.

It is useless, of course, merely to talk about these matters.

In school the children must be supervised, in the cloakroom and in the showers. Towels brought to school must be inspected regularly, as must also the athletic clothing worn.

Many schools now have locker accommodation for gymnastic and athletic clothing. These are a mixed blessing, for though their use generally means that the correct clothing is always available, they also lead children to the habit of keeping their clothing at school all the time instead of taking it away regularly to be washed. Children should be compelled to take home their clothing at least once a week, and should always bring clean kit with them at the beginning of the week, or for their first P.T. or Games period each week.

In Primary Schools, particularly in winter, there are often almost unsurmountable difficulties in persuading all children to change, as often a child comes along with the message, "Mummy says I mustn't change and I mustn't take my jacket and waistcoat off because I catch cold". There is little one can do about cases such as this, except to ask the parents to come along to see you, and then try to persuade them that their child is more likely to catch cold if he or she does not change.

Much valuable propaganda can also be done on 'Open Days', or when displays are given at which parents are present.

FOOTWEAR

Most foot troubles are caused by unsuitable footwear. It is realised that the teacher can have little direct influence on the type of footwear worn by children, but at least he can tell them how they can keep their footwear in an hygienic condition.

The treatment recommended is to clean the insides of the shoes at fairly frequent intervals (particularly during hot weather) with cotton-wool soaked in a camphor solution, which can be obtained from a chemist. A book which can be recommended to teachers is T. T. Stamm's *Foot Troubles* (published by Duckworth in their "Modern Health" series, price 8s. 6d.). It is also possible to refer queries on foot hygiene

to the Central Council of Health Education, Tavistock House North, Tavistock Square, London, W.C.1.

If the feet are sick, the whole body feels sick, and sickness of the feet can be prevented with a little care and a little forethought.

CLOTHING

With present-day educational provision of clothing in the Secondary Schools, there is no reason whatsoever why every child should not have the correct clothing for athletics or games. Such being the case, the only problem is one of maintenance of the clothing provided in an hygienic condition. This problem is closely allied with that of personal cleanliness.

In the Primary School, however, where clothing is not provided, there must be constant emphasis on the necessity of removing surplus clothing when exercise is being taken, and the children's parents should be impressed continually with the desirability of providing separate vests, shorts and rubber-soled shoes, which should be worn only for exercise.

The teacher or head teacher will find in many cases that to achieve this end constant and relentless pressure on parents is needed— but once it has been done a tradition is established which renders the task an easier one in successive years.

CHAPTER NINE

THE ORGANISATION OF AN ATHLETIC MEETING

ALTHOUGH this chapter deals specifically with the organisation of a school athletics meeting or sports day, the suggestions given will be found useful for the organisation of a meeting at any level.

The organisation can be divided into four phases:

- (1) Early preliminaries. (3) The day of the meeting.
- 2, Late preliminaries. (4) After the sports.

EARLY PRELIMINARIES

Selection of Date

As most school sports days are held during the summer term, the selection of the actual day should be decided not later than the preceding mid-term.

Factors which must be borne in mind are:

(a) The dates of the summer term examinations and possible school camps or school journeys.

(b) The dates of the District, County and English Schools Meetings, for logically the successful or outstanding competitors should pass on from the school meeting to the district meeting, and so on.

As most schools have, or should have, representatives on the District Sports Committee, there should be little difficulty in deciding the period during which it will be best to hold the school meeting, but a sufficient time-interval should be allowed to enable the school meeting to be held on an alternative date if the one first selected should be unsuitable owing to bad weather.

Selection of Events

There is much controversy as to what events are suitable for children of various ages. In the selection of events for an individual school meeting much will depend upon the local traditions, but the main consideration is that no undue strain should be placed on a child of average physique. This can be ensured by limiting the number of events for which a child can enter, by adequate preliminary practice in technique and by limiting the distances to be run.

Much will depend upon local conditions, but *as a general guidance* the following athletic events will be found not to cause distress, providing the previously mentioned conditions have been fulfilled.

No account has been taken of events such as obstacle races, sack races, egg-and-spoon races, etc., normally included in Primary School Sports Days, which are usually more in the nature of social gatherings than serious athletic meetings.

Hurdle Races

These races merit separate consideration. Usually the hurdles are set too high and too far apart for the physique of the average school performer.

The hurdle height should be set at approximately three inches above the average crutch height of the performers, and the distances between hurdles should be so arranged that the performer can cover the distance in three normal running strides. Thus, right from the start the hurdles can be taken in the proper manner and the correct rhythm.

There is much room for experiment and research in schools to determine suitable heights and distances between hurdles for boys and girls of all ages, and valuable service would be done to school athletics if teachers would experiment on these lines.

BOYS' EVENTS

<i>Age</i>	<i>Sprints</i>	<i>Longer Distances</i>	<i>Hurdles and Field Events</i>
9+	60 ^s	Nil	High Jump, Stand Broad Jump, Hurdles 50 ^s 5 flights of 18 in.
10 -	70 ^s	120 ^s	Cricket Ball, Hurdles 60 ^s 6 flights of 21 in
11	80 ^s	150 ^s	High Jump, Long Jump, Cricket Ball, Hurdles 60 ^s 6 flights of 2 ft.
12	100 ^s	220 ^s	Hurdles 75 ^s 7 flights of 2 ft. 6 in. Relay 4 110 ^s High Jump, Long Jump, Javelin, Discus
13	100 ^s	220 ^s	As for 12
14	100 ^s 220 ^s 440 ^s	880 ^s Mile	Hurdles 80 ^s 7 flights of 2 ft 9 in. Relay 4 110 ^s High Jump, Long Jump, Hop, Step and Jump, Weight (8 lb 13 oz), Javelin (7 ft 2½ in.), Discus (7 ft - 2 lb 3½ oz) Pole Vault
15	100 ^s 220 ^s 440 ^s	880 ^s Mile	As for 14 plus Hammer (8 lb 13 oz).
16 -	100 ^s 220 ^s 440 ^s	880 ^s Mile	Hurdles 110 ^s 10 flights of 3 ft. High Jump, Long Jump, Hop, Step and Jump, Weight (10 lb), Javelin and Discus as above, Pole Vault, Hammer (8 lb 13 oz)
17	100 ^s 220 ^s 440 ^s	880 ^s Mile	As for 16 +
18+	100 ^s 220 ^s 440 ^s	880 ^s Mile	Hurdles 120 ^s . 10 flights of 3 ft. 3 in. Low Hurdles 200 ^s . 10 flights of 2 ft. 6 in. High Jump, Long Jump, Hop, Step and Jump, Weight (12 lb.), Javelin (7 ft. 6½ in.), Discus (8 ft.—3 lb. 5 oz), Pole Vault, Hammer (12 lb.).

GIRLS' EVENTS

<i>Age</i>	<i>Sprints</i>	<i>Longer Distances</i>	<i>Hurdles and Field Events</i>
9 +	60 ^x	-	High Jump, Standing Broad Jump, Hurdles 50 ^x . 5 flights of 18 in
10 +	70 ^x	120 ^x	High Jump, Standing Broad Jump, Hurdles 60 ^x . 6 flights of 21 in
11 +	80 ^x	120 ^x	High Jump, Long Jump, Hurdles 60 ^x . 6 flights of 2 ft
12 +	100 ^x	150 ^x (curved)	Hurdles 70 ^x . 7 flights of 2 ft 6 in High Jump, Long Jump, Javelin, Discus
14 +	100 ^x	150 ^x (curved)	Hurdles 70 ^x . 7 flights of 2 ft 6 in High Jump, Long Jump, Javelin (7 ft 2½ in), Discus (7 ft 21 lb 3½ oz)
15 +	100 ^x	150 ^x (curved)	As for 14 +
16 +	100 ^x 150 ^x (curved)	880 ^x	Hurdles 80 ^x . 8 flights of 2 ft 6 in Other events as for 15
17	100 ^x 150 ^x (curved)	880 ^x	As for 16
18 +	100 ^x 220 ^x (curved)	880 ^x	Hurdles 80 metres. 8 flights at 2 ft 6 in. Other events as for 17

Selection and Duties of Officials

Having determined the date of the sports meeting and the events to be decided, the officials (both athletic and social) required to run the meeting must now be invited.

Usually in schools the same members of staff perform the

same duties each year but where there are insufficient to run the meeting efficiently, it will be necessary to call upon outside members to help—and even if there are sufficient members of staff, it is suggested that the local organiser of Physical Education and officials of the local athletic organisations should be asked to co-operate.

The number of officials required will depend to a large extent upon the size of the meeting, but the following are essential.

(1) *Referee*.—In many schools, the head teacher acts as Referee, but as he is usually heavily committed on the social side, the Organiser of Physical Education or a local athletic club official may be asked to act in this capacity.

If the meeting is a large one, it is advisable to have both a Track Event and a Field Event Referee.

The Referee is responsible for dealing with any dispute which might arise. If judges fail to agree, it is the duty of the Referee to decide. His decision is final.

(2) *Judges (Track)*.—In a small meeting where there is only one Referee, it is advisable to have a Chief Track Judge and a Chief Field Judge. Not more than two judges are required for any one race, but more should be appointed and a rota drawn up allowing the judges time for a break.

(3) *Judges (Field)*.—Generally, more field judges than track judges are required owing to more than one event at a time being contested. Two judges can officiate in jumps, but three are needed for throwing events. Here again a sufficient number should be appointed to allow for breaks.

In school meetings, it is advised that parents of children should not be asked to officiate as judges, for no matter how fair-minded a parent may be, in moments of stress or excitement the parental instinct is apt to overcome impartiality.

(4) *Timekeepers*.—In the Primary School Sports Day, these officials are not absolutely necessary, but in Secondary Schools at least two should be appointed.

Local athletic club officials are perhaps the most suitable

people to ask to perform these duties, as they have usually had considerable experience and possess first-class stop-watches.

(5) *Starters*.—One only is necessary. Here again the local athletic club can be approached for help. The starter has complete control of the start and his decisions are final.

(6) *Clerk of the Course*.—In the school meeting it is the Physical Education specialist who generally performs this duty of seeing that the course is properly prepared and that all the essential apparatus is available. He should have at least two assistants, who can well be responsible senior children. (For Course Markings, see Chapter Seven.)

(7) *Recorder*.—The duties of the recorder involve the keeping of official records of all the results which he receives from the referees or chief judges. His recording sheet should be prepared and handed to him by the organiser of the meeting.

(8) *Announcer*. Where possible a public-address system should be provided, but in any case a megaphone should be available in case of breakdown. The announcer should be fully conversant with the running of the meeting, for he can play an important part in controlling both spectators and competitors. His announcements should be clear and concise, and *should not* be made just as a race is about to start or when a field-event competitor is about to jump or throw.

If he is advantageously situated, he can add considerable interest to the field events by telling the spectators what is happening during the course of an event. The organiser of the meeting should provide him with a minute by minute schedule of essential announcements, such as times for calling out competitors for their events.

(9) *Chief Steward*.—The duties of chief steward are probably the most important for the efficient working of any athletic meeting. It is his responsibility to see that the meeting runs to time, and this can only be done if the competitors are ready to compete ten minutes beforehand. He should have the services

of, and be responsible for the working of the undermentioned assistant stewards.

- (a) *Competitors' Stewards*.—Their duties are to warn competitors and to hand them over to the Chief Steward. In schools where athletics meetings are run on the House or Team system there should be at least two stewards provided by each House or Team.
- (b) *Programme Stewards*.—These stewards are responsible (where necessary) for the sale or distribution of programmes.
- (c) *Enclosure Stewards*.—Their responsibility is to the Clerk of the Course, whom they assist in keeping the centre of the ground clear of all unnecessary competitors and officials. In the normal meeting, at any level, the centre of the ground is almost as crowded as the spectators' enclosure, except when it rains heavily, when only the essential officials remain on duty.
- (d) *Officials' Stewards*.—Chief Judges should be provided with stewards as should also those judges in charge of field events. The stewards are required for duties such as raking sand in pits, returning javelins, discs and shot.

In large meetings, further stewards will be required to issue and collect officials' badges, look after prizes and issue numbers to competitors.

(10) *Social Officials*.—The duties of social officials will be mainly concerned with such things as:

- (a) The reception and seating of special guests.
- (b) The reception of teams invited to take part in relay races, their seating and entertainment at tea, which should always be provided.

At this early stage of organisation it is also advisable to invite some local celebrity (if such is the usual custom) to present the prizes. A tactful reminder can always be sent about a week

prior to the actual day in the form of a programme of events.

Contact should also be made with the firm responsible for the provision of the public-address system, and with the local Red Cross Organisation or St. John's Ambulance Brigade, who are usually only too willing to give all possible assistance.

Cups or other trophies should also be collected and checked, and orders given for any medals, colours or badges which may be desired.

Similarly, blank ammunition should be checked and further supplies purchased, as also should officials' badges and any other of the items listed on page 87.

If necessary, additional sand for the jumping pits and marking materials can be ordered early to ensure delivery well in advance of the day.

Clerical Preparation

As the school sports organiser will have to do most of his preparation during so-called free periods or in his own time, it is not too early to prepare all the forms, etc., which will be needed in connection with the meeting.

Entry Forms. Each child who enters for any event should be required to fill in an entry form. This has a double use. It is training for when he or she leaves school and wishes to enter open competitions, and it also prevents arguments on sports day itself when children claim to have entered events but their names are not on the programme. Production of the entry form gives the answer immediately. The entry form should contain the minimum facts required, but should state quite clearly the number of events for which a child can enter. A typical specimen is given on the next page.

The forms when completed should be returned to the House, Class or Team representative, who should then extract the necessary information and insert it on a House or Team form, which will be returned along with the entry forms to the person

..... SCHOOL SPORTS, 1961

ENTRY FORM

No competitor can enter for more than three events.

NAME: *Smith, J.*HOUSE: *Raleigh*AGE ON DAY OF SPORTS: *14*

I wish to enter for the following events:

- (1) *100 Yards*
- (2) *Long Jump*
- (3) *Cricket Ball*

Signed: *J. Smith*

THIS FORM MUST BE HANDED TO YOUR HOUSE MASTER BY JUNE 2ND

DIAGRAM 11 ENTRY FORM

organising the meeting. A specimen House or Class or Team Entry Form is given below.

On receiving the forms from the representatives, the organiser should in turn extract the information and insert it on his

HOUSE: *Raleigh*

REPRESENTATIVE:

Name and Initial	No Leave Blank)	EVENTS												
		100 yards	Under 14	100 yards	Open	220 ² Open	440 ⁵ Open	880 ² Open	Long Jump	High Jump	Discus	Javelin	Etc	Etc.
BROWN, E.		.							✓	✓				
BLACK, B.		✓												
WHITE, C.								×			✓			
GREEN, D.		.										✓		
ETC.								✓						
TOTALS		3	0	1		1	1	1	3	1	1	1		

DIAGRAM 12.—TEAM ENTRY FORM

Programme Preparation Sheet. This can be exactly the same as the one shown in Diag. 12, but House or Team Names will be substituted for individual names, and under each event will be the totals as shown on the House or Team Forms. These will also be totalled and he will be able to see at a glance the total number of entries per event, and thus will be easily able to calculate the number of heats required.

Though all the above forms should be prepared well in advance of Sports Day, the entry forms need not be given out until about two weeks before the closing date for entries.

In determining the closing date for entries, the School Sports organiser should decide the amount of time he will require to complete his programme, get it printed or duplicated and distributed by at least two days before the meeting. Having done this, he should add on four or five days, for he will learn by experience that in organising any meeting, and particularly in schools, he will rarely, if ever, get all his entry forms returned by the date stipulated.

In addition to entry forms, various sheets required by the officials on the day itself can be prepared. It is useful to do quite a number of copies of each, thus eliminating the necessity for preparing them year after year. Alternatively, the stencil can be preserved for further use.

The main forms required are as follows:

(1) *Result Cards (Track).* These are handed to the Chief Judges on the day of the sports, with the event and heat numbers already filled in.

The judges enter on them the result of the race and pass them to the Recorder, who extracts the information and records it on his sheet, retaining the result card in case of any query arising.

(2) *Long Jump and Throwing Result Cards.*—This type of card can be used for all throwing events and for the Long Jump. For the High Jump and Pole Vault a separate card, as shown in Diag. 15, is required.

RESULT CARD

EVENT		HEAT		...
Name	No	Placing	Time	
		1		
		2		
		3		
Signed			Chief Judge	

DIAGRAM 13 RESULT CARD (1)

EVENT

Name	Three or Four Jump			Best Three or Jump	Place
	First	Second	Third		
Remarks					
Signed					Chief Field Judge

DIAGRAM 14 RESULT CARD (2)

(3) *Recorder's Card.* — The form of lay-out of the Recorder's Card will depend entirely on the form taken by the competition. It should be fairly large, and on the day should be pinned on to a drawing-board. It is advisable also to draw all lines in waterproof ink. A simple form of Recorder's Sheet working on a Four-House System is shown in Diag. 16.

ATHLETICS FOR SCHOOLS

[illegible]

DIAGRAM 15 **HIGH-JUMP OR POLE-VULTING CARD**

[illegible]

Diagram 16. - RECORDER'S SHEET

LAI. PRELIMINARIES

Approximately three weeks or a month before Sports Day, the second phase of preparation begins.

All entry forms and particulars of events should be sent out to the House, Team or Class representatives, with threats of dire penalties should they not be returned by the closing date!

In the meantime a certain amount of work can be done on the programme. The covers— with lists of officials, particulars of trophies, and event headings with details of standards or records—can be prepared.

During this period, too, all the necessary apparatus to be used for ground preparation or on Sports Day can be collected. A list of likely items required is given below. It is useful to make out a written list and then to tick off the items as they are acquired.

<i>Rope and string</i>	<i>Pole-vault standards</i>
<i>Whitewash or creosote</i>	<i>Jumping laths</i>
<i>Marker</i>	<i>Javelins</i>
<i>Steel tape's,</i>	<i>Discs</i>
<i>Finishing-posts</i>	<i>Shot</i>
<i>Bell</i>	<i>Whistle</i>
<i>Rakes</i>	<i>Forks</i>
<i>Broom</i>	<i>Wooden pegs</i>
<i>Tables</i>	<i>Worst'd</i>
<i>Chairs</i>	<i>Stop-boards</i>
<i>Competitors' numbers</i>	<i>Safety-pins</i>
<i>Badges</i>	<i>Batons</i>
<i>Drawing-pins</i>	<i>Blackboard and easel</i>
<i>Sawdust</i>	<i>Megaphones</i>
<i>Stop-watches (if necessary)</i>	<i>Pistols and ammunition</i>
<i>Notices and posts</i>	<i>All result forms, etc.</i>
<i>Chalk and duster</i>	<i>All apparatus for obstacles</i>
<i>Sacks, etc., for humorous events</i>	<i>Tea tickets (if necessary)</i>

Guests' seating lists

Trophies and medals

High-jump standards

Entry forms and spare programmes when completed

First-aid equipment (if St. John's Ambulance or Red Cross is not available)

Telephone number of nearest doctor

Refreshment arrangements

Stewards and officials duty roster

Hurdles or improvisations

When collecting the above material, try to insist that it is produced *before* the time required. So often items are promised on loan and fail to materialise when they are required.

Preparation of Programmes

The moment all the entries are received the programme can be completed. Several factors must be considered in the arrangement of events.

(1) Sufficient time must be allowed between heats and finals to prevent strain or exhaustion. The following *minimum* rest periods are suggested as being reasonable for the normal school meeting:

<i>Distance of Race</i>	<i>Minimum Rest</i>
100 yards and up to 200 yards	20 minutes
200 yards and up to 300 yards	30 minutes
300 yards and up to 1,000 yards	50 minutes
1,000 yards and up to 2 miles	60 minutes

(2) It is inadvisable to arrange the 100 yards and 220 yards close together, as competitors from the one usually compete in the other. The same applies to the 880-yards and one-mile race.

(3) If the Sports Day is a mixed one, it is often possible, particularly in the sprints, to have two tracks, one for boys and

one for girls. Thus two events can be going on at the same time and time is saved.

(4) Field Events can take place at the same time as Track Events. Some competitors may have to go from one event to the other, but this can usually be arranged with little difficulty.

In compiling the programme it is useful to write down all the events on slips of cardboard (half a postcard is ideal). One can then juggle about with them on a table-top until they are in programme order before actually writing out the programme itself.

It is also advisable to time the events. This not only gives competitors advance warning of when they are due to compete, but also gives all the officials a schedule to which they can work. Approximate timings for events run by competent officials are as below :

100 yards	One heat per minute
220 yards	One heat per two to three minutes
440 yards	One heat per three minutes
120 yards Hurdles	One heat per two minutes
One Mile	Eight minutes
High Jump	Five minutes per competitor
Long Jump	Two minutes per competitor
Shot, Hammer, Javelin and Discus	Two to two-and-a-half minutes per competitor

The most important factor in keeping to a time schedule is the efficiency of the stewards responsible for getting competitors to the starting-point. It will often be found that the older and more experienced athletes tend to take longer to get to their marks than younger children. Usually, too, there are more false starts with older than younger children.

Preparation of the Ground

The lay-out of the ground should of course be decided at a very early stage, for the programme cannot be made without

this knowledge. On a cinder track there will be much less work than on a grass track, which has to be measured out before any lane markings can be made.

Having decided the dimensions of the track most suitable for the particular school field (see Chapter Seven), the track can be staked out some days before the meeting, if this has not already been done, and marked for the normal summer-term athletic programme.

If creosote is to be used it can be done well in advance, but if whitewash is to be used it should not be finally marked out until the day before, for once the track has had its complete marks put down for the athletic meeting, its use should be forbidden until the commencement of the competitive events.

Where possible the following provisions should be made:

(1) All grass should be closely cut and rolled.

(2) Races up to 440 yards should be run in lanes, which can be marked on curves, and stringed if necessary on the straight.

(3) All starts of races which involve running on a curve should be staggered.

(4) The inside edge of the track should be marked with small flags at intervals of 5 yards.

(5) All take-off boards and stop-boards should be freshly whitened or painted.

(6) All sand-pits should be topped-up and thoroughly forked and raked.

(7) Roped-off enclosures for competitors and officials should be provided.

(8) Ensure that there is free access to the place where the sound-equipment van will be situated during the meeting.

(9) In senior meetings, try to provide a special 'warming-up' track or paddock complete with field-event apparatus. This is not always possible, but if such a paddock can be provided it helps considerably in keeping the centre of the arena clear.

THE DAY OF THE MEETING

Though most of the organiser's work will have been done prior to the day of the meeting, there are still many small items which must be attended to on the actual day, and which cannot be done before.

Once the meeting begins it is absolutely essential that he should not try to do everyone else's job. One presumes that responsible people have been asked to officiate; such being the case, let them get on with their own jobs without interference. In the perfectly organised meeting, the organiser *should* be able to sit back and enjoy watching the competitors. In actual practice, he will have many queries to answer, but he should not need to rush from point to point with a harassed and hunted look.

Before the actual meeting begins the following must be done:

(1) Make a quick check of all ground markings and apparatus if there is no Clerk of the Course to do this job.

(2) Check on seating arrangements. It is advisable to label the seats reserved for guests.

(3) See that all officials' cards are clipped on to a stiff board so that they have a firm support for writing.

(4) See that all the trophies are laid out and labelled.

(5) See that first-aid personnel, all invited officials and invited teams are welcomed and provided with tickets for refreshments.

(6) Arrange with whoever is responsible for the public-address system for a microphone to be provided at a given time for the guest who is to present the prizes. Arrange with him also that the National Anthem is not played until you personally give the signal to do so.

(7) Have a word with all the chief officials to check whether they have any queries or requirements. Get them to synchronise their watches.

(8) Arrange with the person responsible for catering that refreshments are sent out to officials who are unable to leave their posts while the meeting is in progress.

(9) Have available a spare copy of the A.A.A. handbook. The Referee should have one, but in case he hasn't, yours will be available. It is also advised that Field-events' Judges should have relevant extracts from the rules pasted to their boards. This is particularly applicable in the case of the High-jump Judges.

(10) Remember, again, that if you have a full complement of officials, you have done your job. Let them do theirs.

AFTER THE SPORTS

Even when the actual competition is finished there is still a considerable amount of work to be done by the organiser.

(1) The field must be cleared, all chairs collected and stowed away, litter removed and all apparatus cleaned and put into store ready for further use.

(2) Permanent trophies should be collected together and with details of engraving required sent off to the jewellers to be done.

(3) A file should be opened for the following year's athletic meeting. This should contain:

(a) Two copies of all letters and notices sent out prior to Sports Day.

(b) The Recorder's Sheet.

(c) At least two copies of the programme brought up-to-date with details of new records, record holders and new standards (where necessary).

(d) The names and addresses of all outside officials who gave their services.

(e) A list of defects noticed in the administration and running of Sports Day, with practical suggestions for their elimination in future years.

This file is essential for continuity, for it must be remembered

that it is possible that someone else may be organising the school meeting next year, and if a file such as is suggested above can be handed to him, his work is going to be considerably simplified.

(4) All outstanding accounts should be paid immediately and a simple balance-sheet prepared. Even in a small school sports it is suggested that this should be done, as it will provide a record of prices for the following year.

(5) *A letter of thanks and appreciation should be sent to all who have assisted in any way whatsoever.* This letter should be sent, not only to adults who have helped but to children who have assisted even in the smallest capacity as stewards or runners. This small courtesy is often forgotten, but it costs so little and often it means so much to those who have assisted. It is particularly important that the children should receive thanks for not only are they pleased and thrilled at receiving a letter but they are also indirectly being taught a valuable lesson in good manners.

It is suggested also that in the letters sent to the officials of athletic clubs who may have assisted, they be asked for any helpful criticisms and suggestions on administration for future years. They have usually had considerably more experience of athletics than the school organiser, and though all that is done in a senior meeting may not be practicable in the small school Sports Day, their suggestions will be most helpful and may be adapted to meet the less stringent demands of the school.

Finally, among the letters of thanks do not forget any First-aid Services who might have given assistance. A donation, no matter how small, to the funds of the local unit will be most gratefully appreciated.

CHAPTER TEN

THE ORGANISATION OF A CROSS-COUNTRY RACE

IN the normal school cross-country race where the numbers usually do not exceed thirty or forty there is little need for any elaborate arrangements, but where several schools or teams become involved, say at a District, County or National level, it is essential that the administrative arrangements should be as comprehensive as possible, or the result may well be chaotic, particularly at the finish.

The following suggestions are based on the assumption that the numbers are large, and they should be modified to meet the individual circumstances.

THE COURSE

The course conditions should be as varied as possible, and ideally should include road surfaces, rough and ploughed ground, heath, woods and, of course, some water or other form of obstacles. It is realised that, particularly in urban areas, such conditions are not always possible, but full use should be made of local playing-fields, recreation grounds and parks.

THE START

A flag can be used for starting, and the Starter should stand well away from the runners, preferably to one side; but he must be visible to all the competitors.

If large numbers of teams are involved, it is advisable to have a representative of each team placed on the start-line so that all the members of the teams can have a clear indication as to

their actual starting position. The start-line should be so placed that there is a good clear runway of at least a quarter of a mile, so that the competitors do not get unduly crowded together at the start.

In a single school cross-country race, it is advisable to allow the competitors to walk over the course the day previously so that the chances of their going astray during the actual race are reduced to a minimum. Where this is not possible, and even when it has been done, the first landmark, which can be some distinctive natural or artificial feature such as a tree or gate, should be clearly indicated at the start.

On the course itself, the route should be clearly indicated at each corner or leg by flags, arrows and, if possible, an actual marker, so that at no stage are the competitors confused. In woods or wooded country extra indication of the path to be followed can be given by laying down a trail of paper. As much of this paper as possible should be removed after the race by a fatigue party. All obstacles on the course, such as gates, hedges and water splashes, should be marked quite clearly by double flags.

THE FINISH

Wherever possible this should be situated near to the start, i.e. the competitors run a certain distance in one direction and then turn for home. This is useful not only for economy in officials, as some of the early markers can return to the start to do duties at the finish, but it also avoids having to transport the clothes and cases of the runners. Furthermore, first-aid services will generally be within easy reach of any distressed competitor.

The most satisfactory type of finish is the 'pen and table' system which is shown in Diag. 17. The officials required for this and the race as a whole, together with details of their duties, are given on the next page.

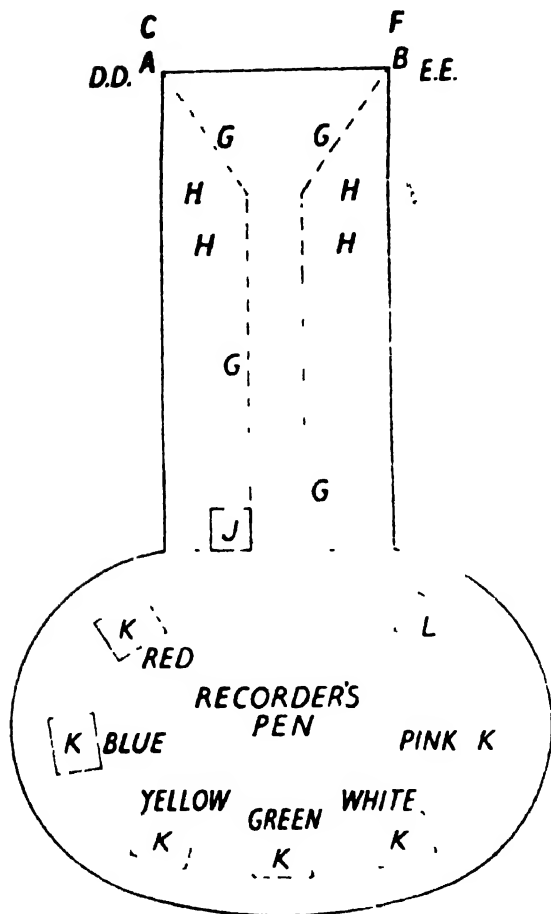


DIAGRAM 17 CROSS-COUNTRY FINISH

KEY TO DIAGRAM

A.B.	Finishing-line	G.G.	Controllers.
C.	Chief Judge.	H.	Substitutes.
D.D.	Judges.	J.	Number Issuer and assistant.
E.E.	Timekeepers.	K.	Team Recorders.
F.	Referee.	L.	Chief Recorder.

(1) The Referee, Timekeepers, Chief Judges and Starter work exactly as they would do at any normal athletic meeting.

(2) The Clerk of the Course is, as his name implies, responsible for seeing that the course is properly signposted, that spectators are kept clear of the runners, and that the markers are placed in position and given explicit instructions on their duties.

(3) Stewards will be required to call and check competitors immediately prior to the race.

The officials who are not required in a routine athletic meeting and those whose duties are slightly different in a cross-country race are Team Recorders, Controllers, Substitutes and Number Issuers. Their duties can best be explained by reference to their positions as shown in Diag. 17 of a suggested finishing pen.

A pen of the shape shown should be roped off and a finishing line A B marked plainly on the ground. Competitors, as they finish, cross the line and enter the roped funnel-shaped passage leading to the Recorders' Pen. Two or more *Controllers*, G G (according to the number of competitors in the race), take charge of the runners the moment they have crossed the line.

It is their duty to see that competitors enter the funnel *in the order they have crossed the finishing line*.

On each side of the funnel should be *Substitutes* (though in a school race where the distance should always be well within the physical powers of *all* competitors they should hardly ever be necessary). Their function is to take the place of any exhausted competitor who has completed the course. It is advisable for them to work in pairs, one of whom takes the place of the competitor, while the other takes care of the exhausted athlete, and either leads him to the dressing-room or sees that he gets first-aid or medical attention.

On reaching the end of the funnel the athlete receives from the Number Issuer J (who should have an assistant) a numbered card or disc which shows his actual order of finishing. If the Controllers are doing their jobs efficiently, the issuing of finishing numbers should be almost automatic, being

given out consecutively as the athletes pass the table. This number is then taken by the competitor to his team-recording table, where the Team Recorder enters it on his sheet.

The diagram assumes that six teams are involved. All members of the Red Team will report to the Red Recorder, the Blue Team to the Blue Recorder, and so on. Teams, particularly in school races, can be of any size, although six or eight is a suitable number. In adult competitions the teams are usually larger.

If the race is run on an individual basis, the team recorders can be dispensed with, and a Chief Recorder and assistant can take down the finishing order of all competitors. When a team recorder has entered the finishing order of all the members of his team, his sheet is taken to the Chief Recorder who enters the details on his own sheet.

Whenever possible the numbers worn by competitors should also indicate by letter to which team they belong, e.g. R1, R2, R3, etc., for the Red Team, B1, B2, B3, etc., for the Blue Team.

When the race is run on an individual basis the Recording Sheet will be quite a simple affair; the Recorder does no more than set down, in correct sequence, the numbers of the competitors as they finish the course.

Team: Red		Numbers. R1 R8
Competitors' Numbers	Team Order of Finish	Order of Finish in Race
R2	1	2
R3	2	4
R1	3	6
R5	4	9
R7	5	13
R4	6	14
R8	7	15
R6	8	17
Total Score		80

Signed

Recorder.

DIAGRAM 18.— RECORDER'S CARD (TEAM

This completed form will be handed to the Chief Recorder, who will check it and then place it in order of merit along with the forms of the other teams; and his results will be entered on his own sheet.

If in Diag. 18 only the first six runners in each team were to count in the competition, only the points scored by them would be added together; but the finishing positions of the seventh and eighth runners would be recorded in case any of the first six home were subsequently disqualified.

If there are any ties in the case of a team competition, the points that would have been allotted to the places should be added together and divided by the number of competitors involved, e.g. if the 9th, 10th and 11th men finish together, the points which total thirty are divided by three. Thus each man will score as if he finished tenth.

It is customary in adult competition to enter, say, teams of fifteen, of which the first twelve home count for points, although these numbers can be varied at will, and teams of ten with eight to count, or teams of eight with six to count, can be chosen according to local conditions or circumstances.

If it should happen that two or more teams score an equal number of points, the winning team is decided by the position of the last man in the team to count. E.g., if the last man in the first team is number twelve, and in the second team he is number nine, and in the third team number eleven, the second team would be the one to win.

In some schools it may be desirable to have all the physically fit boys of a House compete in a cross-country run, even though the Houses may be of unequal strength. In such a case every runner counts in the competition, and the total number of points scored by the House should be divided by the number of runners in that House; the one having the lowest average score is the winner.

If it should happen that certain competitors fail to finish, then

each such competitor will be credited with points equivalent to the total number of competitors plus one.

There are occasions upon which team and individual competitions are decided in one race. In such an event the individual recorder will have been told to note the finishing positions of only a certain number of the leading runners, e.g. the first fifteen or twenty. These athletes, running for their teams as well as individuals, must be given team discs as they cross the finishing line and report to their team recorder in the pen.

Occasionally, in some of the larger contests, runners will compete as individuals without belonging to a team. In such an event, it is important to avoid giving these athletes any of the discs for team placings when they finish. It is advisable when such athletes are competing to give them letters (worn on the vests) of a different colour from those who are competing in the team competition.

No mention has been made of such administrative arrangements as entry forms, lists of equipment, prizes and so on, but all these, including such things as the invitation of officials, will be carried out in a similar manner to the suggestions given in Chapter Nine dealing with the organisation of an athletic meeting.

CHAPTER ELEVEN

ATHLETIC STANDARDS

ATHLETIC standards provide a rule by which the individual child can measure immediately his or her progress in any particular athletic activity. It is important, however, that any system of standards of achievement or attainment should cater not only for the proficient exponent of a particular event but also for the child who is incapable of reaching a so-called 'District', 'County' or 'National' standard.

The outstanding child athlete can measure his attainment by a comparison of his efforts with the standards suggested by the Schools' Athletic Association, but they are Standards for Competition, and the average, sub-average and very-sub-average child can never hope to attain them.

Yet these children might be putting far more effort and concentrated endeavour in their work than the outstanding child athlete. A set of standards based on competitive averages, or on chronological age alone, is therefore of little real value to the great mass of children in schools.

A child can have three ages - Chronological, Physiological and Psychological - all of which may differ. Ideally, a Standards Table should cater for these three ages, but the correlation of the three ages with athletic prowess or endeavour would be an almost impossible task; therefore, for practical purposes in schools, and until further research is done, Tables of Standard Attainments which take into consideration age, height and weight will give the truest *immediately* available measure of skill and progress.

Considerable research on standards in athletics is in progress,

and within the near future it may be possible to devise standards, not based on just age, height and weight, but on fitness coefficients, which take the above three factors into consideration, plus chest measurement.

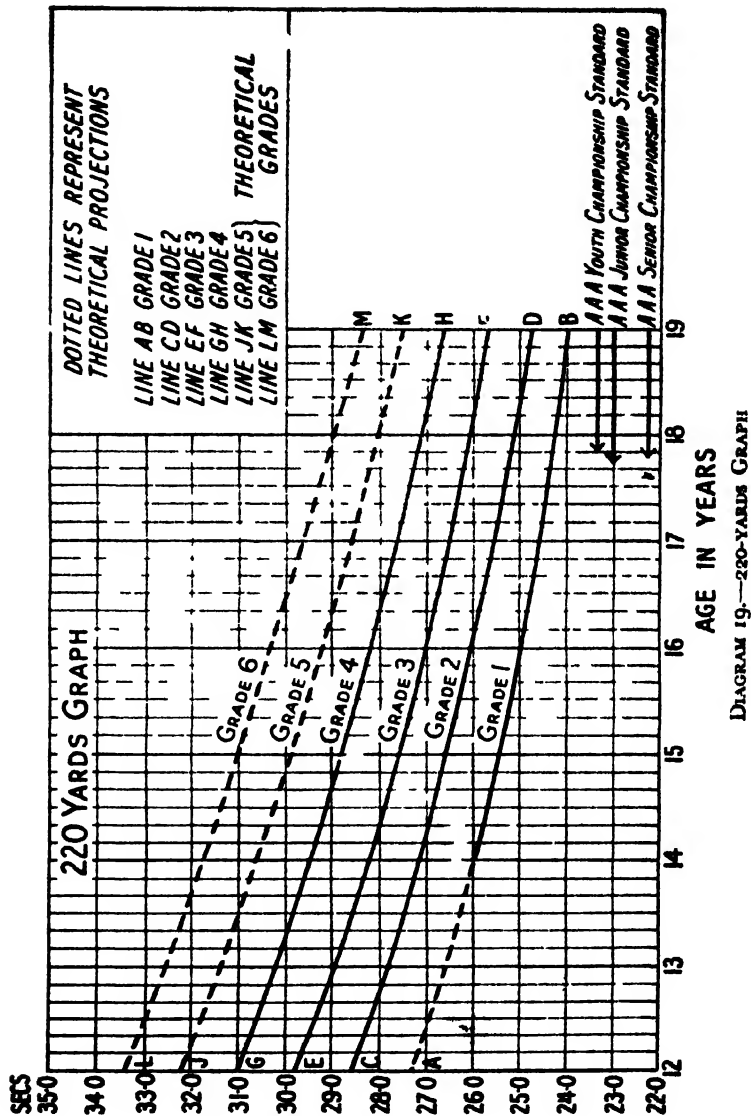
Standards Tables based upon age, height and weight cater for every type of child, but are most valuable to those children who, by reasons of physique, will never be able to attain, say, Grade 4 of the Schools' Athletic Association Standards, but whose athletic performance might be by comparison better than that of another child who is capable of reaching a Grade 1 standard, which is based on chronological age alone.

From an Age-Height-Weight Table of Standard Athletic Performances one should be able to estimate whether a jump of, say, 4 ft. 6 in. by a boy of fourteen with a height of 5 ft. 2 in. and a weight of sixty pounds is proportionately better or worse than a jump of 3 ft. 6 in. by a boy of the same age but whose height is only 4 ft. 3 in. and who weighs only fifty pounds.

By working out marks on a percentage basis, it would then be possible, say, for a short, fat child of twelve to score the same mark as a tall, slim boy of fifteen, even though the heights or distances jumped were totally different.

Though such Standards Tables would not be so readily valuable to the accomplished performer, they would provide an incentive to further effort and progress by that child who probably never before has been considered good at any physical activity, and might even have been a source of considerable amusement to his more physically normal companions. By competitive standards he is still not good, but taking other factors into consideration and by comparison he might be excellent.

Before discussing standards based on age-height-weight, a consideration of competitive standards, with suggestions as to how, within limits, these standards might be adapted for the below-average performers in schools, will be of value.



Here we would like to express our thanks to the Schools' Athletic Association for permission to quote from and adapt the figures given in their *Tables of Standard Attainments*.

STANDARDS FOR COMPETITION

In the publication mentioned above, which is incorporated in the S.A.A. annual *Handbook* (obtainable from the Hon. Secretary at a cost of sixpence plus postage), the standards are adjusted annually and are the most authentic which can be found in this country to-day for the performances of children.

The standards are divided into four grades:

Grade 1: Corresponds to the performance required of competitors chosen for county teams at the Inter-County Championship Meeting.

Grade 2: The performance required of district representatives qualifying for a county meeting.

Grade 3: The performance of a boy or girl aiming at representing the school at a district meeting.

Grade 4: The performance which should be expected at an ordinary school meeting.

Figures in each of the above grades are given for most events and for boys and girls in the age ranges 12+ to 19+. (For boys and girls of 12+ and 13+ Grade 1 is not included.)

By using the figures given in these tables and plotting them graphically some interesting facts come to light—and from the graphs one can obtain figures which can be used in various ways, two of which are suggested below.

For the purpose of illustration a sprint (220 yards) is plotted, but all events can be treated in a similar manner.

The standards given for boys are shown on page 105.

Using the figures given, plot the graph for each grade as shown in Diag. 19. For the purpose of illustration it has been assumed that the average ages when the children in the appropriate grades reach the required standards are 12, 13,

14, 15, 16, 17, 18 and 19 years. In the absence of data on this point this assumption may not be strictly accurate, but as they are likely to lie between these ages and the age limit on the day of competition any error made is small.

It will be seen that four approximately parallel lines are produced.

On the graph two further *theoretical* lines have been drawn giving two extra grades, 5 and 6, which can be classed as *a*) Grade 5: good average school standard, and *(b)* Grade 6: good average house, class or form standard.

AGE-LIMIT ON DAY OF COMPETITION

14 Yrs. 4 Mths.				15 Yrs. 4 Mths.				16 Yrs. 4 Mths.				17 Yrs. 4 Mths.				18 Yrs. 4 Mths.				19 Yrs. 4 Mths.			
Grades				Grades				Grades				Grades				Grades				Grades			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
28.6	29.8	31.0		27.8	29.0	30.2	26.0	27.1	28.3	29.5	25.5	26.6	27.7	28.8									
16 Yrs. 4 Mths.				17 Yrs. 4 Mths.				18 Yrs. 4 Mths.				19 Yrs. 4 Mths.											
Grades				Grades				Grades				Grades											
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
25.0	26.0	27.1	28.2	24.6	25.6	26.5	27.6	24.3	25.2	26.1	27.1	24.0	24.8	25.7	26.6								

Similarly lines can be drawn from actual school examples for below average and well below average grades.

The examples given on the graph are merely used to illustrate a method which can be adopted for the purpose of obtaining a set of standards applicable to any school.

Included on the graph for comparison are three lines showing A.A.A. Youth, Junior and Senior Championship Standards.

SCHOOL USES OF THE STANDARDS GRAPH

From the Standards graph can be obtained tables showing actual progressive standards to be reached by a child each month in each grade, as is shown on page 107. If actual school averages are known, these should be used, but in the absence of such knowledge the times derived from the graph above will form a basis on which to work.

Similar figures can be obtained for all other events set out in the English Schools' Standards Tables.

A second and a better use for these Standard Tables is to use them to plot individual graph cards, which can be distributed to and retained by the child for his use either during the summer term or for the whole year.

These cards consist of enlarged portions of graphs such as is shown in Diag. 19, on which the child can plot his or her performance lesson by lesson, or whenever opportunities for practice are given in a particular event. The cards can be duplicated or, if the school possesses a small printing machine, printed at a very small cost. A specimen Individual Performance Graph with notes on its use is shown in Diag. 20. This is merely one way in which the card can be designed. With older children, several events might be included on the same card.

Notes on Diagram 20.—The dotted lines represent the Grade 4 (actual) standard performances derived from the tables of the Schools' Athletic Association, and Grades 5 and 6 which are theoretical projections based on those tables. The continuous line represents the individual performance of a boy between the ages of fourteen and fifteen.

Each month he has plotted his best performance over the 220 yards, and he can see immediately the progress he is

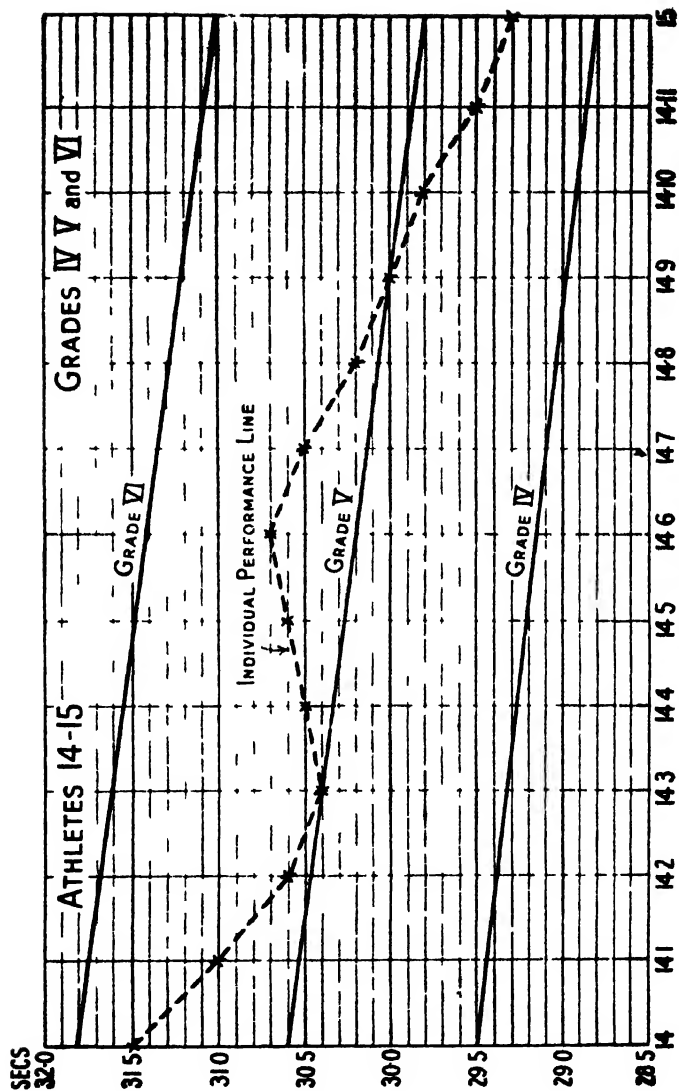


DIAGRAM 20 — INDIVIDUAL PERFORMANCE GRAPH, 220 YARDS

making. As will be seen, he has improved from a Grade 6 plus performer to one of Grade 5 plus.

Many further details can be added if required, such as notes on weather conditions for each performance, diet on the day concerned, differences in starting, whether the result was achieved in a race or against time, condition of the field or track, and so on.

Though all these details are not essential in schools, such a system would undoubtedly be of value for more advanced and senior athletes, not only for an analysis of performance but as a permanent record of achievement.

THE MILOCARIAN TROPHY SCORING TABLES

The scoring tables for the A.A.A. Milocarian Trophy Competition (obtainable from the Hon. Secretary, A.A.A., 54 Torrington Place, London, W.C.1) are invaluable for the comparison of performances in competition. Furthermore, by combining their points scoring system with the S.A.A. Tables of Standard Attainments they can be adapted to cater not only for competition alone but also for competition by age as is shown by the following example.

In the S.A.A. Tables the following figures are given for Grade 1 performances in the 220 yards:

GRADE 1							
Age	Time	Age	Time	Age	Time	Age	Time
14·4	26·0	15·4	25·5	16·4	25·0	17·4	24·6

In the Milocarian Tables the points scoring for a time of 24·6 seconds in the 220 yards is 43. Therefore a boy of 14 achieving a time of 26·0 seconds should receive the same number of points, i.e. 43 for his performance, even though the Milocarian

points value for this time is only 29. Using this premise as a basis, a new form of table can be devised for all events by combining the two above-mentioned tables. A section of the 220 yards combined table is shown below.

<i>Age 14·4</i>			<i>Age 15·4</i>			<i>Age 16·4</i>			<i>Age 17·4</i>		
<i>Grade</i>	<i>Time</i>	<i>Points</i>	<i>Grade</i>	<i>Time</i>	<i>Points</i>	<i>Grade</i>	<i>Time</i>	<i>Points</i>	<i>Grade</i>	<i>Time</i>	<i>Points</i>
1	26 0	43	1	25·5	43	1	25 0	43	1	24·6	43
2	27 1	33	2	26 6	33	2	26 0	33	2	25·6	33
3	28 3	24	3	27·7	24	3	27 1	24	3	26·6	24
4	29 5	16	4	28 8	16	4	28 2	16	4	27 6	16

This scoring system can of course be used to cater for all times and distances in all events merely by fixing the appropriate points from the Milocarian Tables for the standard performances of the 17·4 age group of the S.A.A. Tables and drawing up tables similar to the one above.

STANDARDS BASED ON AGE, HEIGHT AND WEIGHT

The standards so far discussed have been competitive ones and have taken into account age only, but, as was said earlier in this chapter, an ideal table would cater for the chronological, psychological and physiological age of the competitor.

The compilation of a workable table of this nature would be an almost impossible task; the nearest approach to such a table is one based on age, height and weight.

Considerable work on this problem has been done in America and a few years ago much work of a similar nature was done by Mr. F. J. C. Marshall, M.C., when he was Superintendent of Physical Education and Inspector of Schools, City of Bradford Education Committee, to whom we are indebted and

grateful for permission to quote from his book *Physical Activities for Boys' Schools*.¹

Basically the system is as follows:

A grading chart is drawn up and exponent values are given for the three factors age, height and weight. The exponents are added together, and the total determines the 'Grade' of the performer.

Scales of achievement in athletic events are also devised for each grade and percentage scores given to each individual performance.

The Grading Chart used by Mr. F. J. C. Marshall is given below.² This should be used in conjunction with the performance tables which follow, and which are based largely but not entirely on the Milocarian standards.

GRADING CHART

Age in Years and Months	Weight (lb)	Height in	Exponent	Age in Years and Months	Weight lb	Height in	Exponent	
	53 59		9	11 7 12 0	117 153 191	51½	24	
	60 65		10	12 1 12 6	154 159 162	53½	25	
	66 71		11	12 7 13 0	160 165 164	55½	26	
	72 78		12	13 1 13 6	166 171 166	57½	27	
	79 81		13	13 7 14 0	172 178 168	59½	28	
	85 90		14	14 1 14 6	179 184 160	62	29	
	91 96		15	14 7 15 0	185 190 162½	64	30	
	97 103		16	15 1 15 6	191 plus 64½	66	31	
	104 109		17	15 7 16 0		66½	68	32
	110 115		18	16 1 16 6		68½	70½	33
	116 121		19	16 7 17 0		71	72½	34
	122 128		20	17 1 17 6		73	74½	35
10 0 10 6	129 134		21	17 7 18 0		75 plus		36
10 7 11 0	135 140	Up to 47	22	18 1 18 6				37
11 1 11 6	141 146	47½ 49	23	18 7 19 0				38

¹ Published by University of London Press, Ltd

² This is based on the 'Best Fit' index formula

EXPONENT GRADING

<i>Sum of Exponents</i>	<i>Grade</i>	<i>Sum of Exponents</i>	<i>Grade</i>
90 and above	A	71 to 74	E
85 to 89	B	67 to 70	F
80 to 84	C	63 to 66	G
75 to 79	D	62 and below	H

The grading of a boy 13 years 10 months old, with a height of 67½ in and a weight of 135 pounds, will be found in the following manner:

Age 13½	Exponent for age	28
Height 67½ in	Exponent for height	32
Weight 135 lb	Exponent for weight	22
	Total of Exponents	82

From the exponent grading chart it will be seen that he is Grade 'C'.

Having found the grade of the performer, all that is then required is to find the mark allotted for his performance on an event chart. Two such charts, one for the 100 yards event and the other for the High Jump, are given on pages 114-117.

In previous editions of this book we gave charts for all the events, but we are now of the opinion that, in the average school, the working of such a standards system, though of academic interest, tends to involve far more administrative work than is normally possible and that the time could perhaps be better spent on simpler systems such as those indicated earlier in this chapter.

One other weakness in this system using the charts given is that the figures are not valid at the upper and the lower ends of the scales.

For instance, suppose one had a boy of 14 years of age with

a height of, say, 5 ft. 3 in. and a weight of ten stones seven pounds (and there are such boys), his grading would be:

Exponent for age	= 28
Exponent for height	= 30
Exponent for weight	= 24
	--
Total of exponents	82
	--

This puts the boy into Grade 'C'. To gain 100 points such a boy would need to jump 6 ft. to gain 100 points and 4 ft. 6 in. to gain 50 points.

On the other hand suppose you had a 14-year-old boy with a height of 6 ft. and a weight of, say, nine stones, his exponents would be:

Exponent for age	28
Exponent for height	33
Exponent for weight	20
	--
Total of exponents	81

This puts the boy in the same 'C' category, yet it is quite obvious that this second boy is much more likely to score far higher points in the high jump with *less* effort than the first boy who obviously has not a physique suitable for high jumping.

It is better, therefore, that the reader should be more concerned with procedures for calculating standards than with the times and distances suggested.

In the case of the individual school, nationally published figures should be used only as a yardstick for comparison, and not as a sign of success or failure in athletics coaching.

NOTES ON THE PERFORMANCE TABLES

THE following two tables should be used in conjunction with the exponents tables set out on pages 110-111.

These tables are intended only to assess relative effort on the part of performers of widely differing physique, and cannot be compared with the International Decathlon Tables, which endeavour to correlate performances in different events by athletes of approximately equal ability.

The tables given are also merely suggestions, and the maximum and minimum figures given can be adjusted, if necessary, to suit the requirements of the individual school.

ATHLETIC STANDARDS

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100 YARDS PERFORMANCE TABLE - continued

%	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
50	120	123	126	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195
49	120	123	126	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195
48	120	123	126	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195
47	121	124	127	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196
46	122	125	128	131	134	137	140	143	146	149	152	155	158	161	164	167	170	173	176	179	182	185	188	191	194	197
45	123	126	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195	198
44	123	126	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195	198
43	124	127	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199
42	124	127	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199
41	125	128	131	134	137	140	143	146	149	152	155	158	161	164	167	170	173	176	179	182	185	188	191	194	197	200
40	125	128	131	134	137	140	143	146	149	152	155	158	161	164	167	170	173	176	179	182	185	188	191	194	197	200
39	126	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195	198	201
38	127	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199	202
37	127	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199	202
36	128	131	134	137	140	143	146	149	152	155	158	161	164	167	170	173	176	179	182	185	188	191	194	197	200	203
35	128	131	134	137	140	143	146	149	152	155	158	161	164	167	170	173	176	179	182	185	188	191	194	197	200	203
34	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195	198	201	204
33	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195	198	201	204
32	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199	202	205
31	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199	202	205
30	131	134	137	140	143	146	149	152	155	158	161	164	167	170	173	176	179	182	185	188	191	194	197	200	203	206
29	131	134	137	140	143	146	149	152	155	158	161	164	167	170	173	176	179	182	185	188	191	194	197	200	203	206
28	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195	198	201	204	207
27	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	180	183	186	189	192	195	198	201	204	207
26	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199	202	205	208

S.A.A. NATIONAL STANDARDS, AND BEST PERFORMANCES AT CHAMPIONSHIP MEETINGS

As a point of interest, the S.A.A. National Standards for 1961 are given below, as are the Best Performances at Championship Meetings up to 1960. These show some really fine and frequently almost amazing athletic achievements, as for instance 10.4 seconds for 100 yards and 21 ft. 2½ in. for the Long Jump by boys under fifteen years of age!

S.A.A. NATIONAL STANDARDS, 1961

<i>Event</i>	<i>Junior</i> (Under 15)	<i>Intermediate</i> (15-17)	<i>Senior</i> (17-19)
100 yds.	10.8 secs.	10.5 secs.	10.3 secs.
220 „	24.2 secs.	23.4 secs.	23.1 secs.
440 „	55 secs.	53 secs.	51.8 secs.
880 „	2 mins. 7 secs.	2 mins. 2 secs.	2 mins.
1 Mile	4 mins. 45 secs.	4 mins. 33 secs.	4 mins. 27 secs.
Hurdles	11 secs.	14.5 secs.	15.6 secs.
Low Hurdles	—	—	24.2 secs.
Relay (4 × 110 yds.)	47 secs.	45.6 secs.	45 secs.
High Jump	5 ft. 4 ins.	5 ft. 7 ins.	5 ft. 9 ins.
Long Jump	18 ft. 6 ins.	19 ft. 9 ins.	20 ft. 9 ins.
Hop, Step and Jump	39 ft.	42 ft.	43 ft.
Weight	45 ft. (8 lb. 13 oz.)	47 ft. (10 lb.)	47 ft. (12 lb.)
Javelin	150 ft.	180 ft.	180 ft.
Discus	140 ft.	165 ft.	140 ft.
Pole Vault	9 ft. 6 ins.	10 ft. 6 ins.	11 ft.
Hammer (T)	100 ft. (8 lb. 13 oz.)	120 ft. (10 lb.)	120 ft. (12 lb.)

GIRLS

100 yds.	11.7 secs.	11.6 secs.	11.6 secs.
150 „ (curved)	18 secs.	17.4 secs.	—
220 „	—	—	26.8 secs.
880 „	—	—	2 mins. 26.8 secs.
Hurdles	10.5 secs.	11.6 secs.	12.4 secs.
Relay (4 × 110 yds.)	51.8 secs.	51.6 secs.	51.4 secs.
High Jump	4 ft. 11 ins.	4 ft. 11 ins.	5 ft.
Long Jump	16 ft.	16 ft. 6 ins.	16 ft. 9 ins.
Javelin	95 ft.	105 ft.	110 ft.
Discus	95 ft.	100 ft.	105 ft.

BEST PERFORMANCES AT CHAMPIONSHIP MEETINGS

BOYS

<i>Event</i>	<i>Junior Boys</i>	<i>Intermediate</i>	<i>Senior Boys</i>
100 yds . . .	10.4 secs.	10.1 secs.	9.9 secs.
220 yds. . . .	22.8 secs.	22.2 secs.	21.8 secs.
440 yds. . . .	51.4 secs.	49.9 secs.	49.1 secs.
880 yds	2 mins. 0.8 secs.	1 min. 56.6 secs.	1 min. 55.6 secs.
1 Mile	4 mins. 36.6 secs.	4 mins. 16.8 secs.	4 mins. 12 secs.
Hurdles	10.6 secs.	13.7 secs.	14.7 secs.
Low Hurdles . .	—	—	22.8 secs.
High Jump . . .	5 ft. 9 ins.	6 ft. 0 in.	6 ft. 0½ in.
Long Jump . . .	21 ft. 2½ ins.	22 ft. 6½ ins.	23 ft. 8½ ins.
Pole Vault . . .	10 ft. 7 ins.	11 ft. 9 ins.	13 ft. 3 ins.
Hop, Step and Jump .	43 ft. 0½ in.	46 ft. 2 ins.	45 ft. 4½ ins.
Weight	54 ft. 11½ ins.	54 ft. 8½ ins.	53 ft. 8 ins.
Javelin	186 ft. 8 ins.	198 ft. 0 in.	223 ft. 5 ins.
Discus	173 ft. 9 ins.	200 ft. 9½ ins.	169 ft. 4 ins.
Hammer	138 ft. 0 ins.	152 ft. 5½ ins.	180 ft. 2½ ins.
Relay	46 secs.	44 secs.	43.6 secs.

GIRLS

100 yds.	11.2 secs.	11.1 secs.	11.0 secs.
150 yds.	16.7 secs.	16.7 secs.	—
220 yds.	—	—	24.9 secs.
880 yds.	—	—	2 mins. 18.5 secs.
Hurdles	10.0 secs.	11.0 secs.	11.3 secs.
High Jump . . .	5 ft. 3 ins.	5 ft. 4 ins.	5 ft. 4 ins.
Long Jump . . .	17 ft. 7 ins.	18 ft. 8½ ins.	18 ft. 6 ins.
Discus	119 ft. 1 in.	133 ft. 3 ins.	134 ft. 1 in.
Javelin	118 ft. 6 ins.	133 ft. 0 ins.	124 ft. 0½ in.
Relay	49.9 secs.	49.5 secs.	49.5 secs.

NOTES ON LATEST PERFORMANCES IN SCHOOL ATHLETICS

PART TWO

CHAPTER TWELVE

THE USE OF PROGRESSIVE STAGES IN THE TEACHING OF ATHLETICS

ON the following pages will be found details of the technique and lists of suggested progressive skills leading to the performance of athletic events which are suitable for teaching in schools.

Such lists of progressive skills are particularly valuable to those teachers who do not have the wide experience and the detailed knowledge possessed by the professional athletic coach or by the full-time specialist in Physical Education.

In recent years, however, there has been a tendency to regard progressions as a panacea for all teaching ills. Many teachers have worked on the erroneous theory that the greater the number of progressions that could be devised to lead up to the particular activity or technique, the better would be the teaching and the resultant performance.

Not only have they failed to realise that however many progressions are devised, if the fundamentals of teaching technique are missing the result will be failure; in many cases, too, the progressions they have invented have strayed far from basic skills, and all they have produced have been picturesque but completely artificial gymnastic movements bearing little or no resemblance to the particular athletic event.

Many impressive gymnastic movements, such as trunk turnings and leg-driving exercises, can be devised by most teachers, but few of them have any effect upon subsequent athletic performance except to teach improper movement patterns.

It is not implied that gymnastic movements or gymnastics as a whole are detrimental to athletic performance; far from it.

On the contrary, physical exercise is most valuable as a means of toning up the whole body in preparation for the performance of the complicated, and often strenuous, co-ordinations required in a particular athletic activity.

Let us, however, not try to make 'Gymnastics' become 'Athletics' and vice versa.

Another great weakness of these attempts to interpret athletic skills in terms of gymnastic movements has been due to the well-intentioned desire of the teacher to teach as many people as possible at the same time; but, in athletics, the moment when class and group teaching must give way to individual coaching is soon reached, and further mass instruction would not only be of little value technically but would also become completely boring to the majority of the class.

This individual coaching cannot, of course, be given all the time by the teacher himself—but recourse should be made to the 'master and pupil' system, where the 'master' is really another pupil or group leader watching and helpfully criticising a particular skill, or part of a skill, which has been demonstrated and taught previously by the teacher.

In some events, the progressions given are few in number, and the teacher may feel that they can be taught in a very short time, leaving little to be done in the later years of school life. It should not be forgotten, however, that in the normal school scheme of Physical Education athletics is only a small part of the whole, and there are many other things to be taught as well as athletic skills. Furthermore, progression is not limited to moving from one activity to another of increasing difficulty, but there is also a progression in the skill of performance of the progressive skills themselves.

In the teaching of athletic progressions the following considerations must be emphasised:

(1) The teacher must beware of the temptation to assume that because leading-up stages are good, the greater the number, the better. We feel that the progressions listed on the

following pages should represent the maximum number required to teach the event.

(2) It is important to progress reasonably quickly to the *complete movements* and *correct rhythm*. Once an athlete has mastered a complete movement pattern, that movement should be practised at a rhythm and speed suited to his physical capabilities; e.g. in high-jumping or pole-vaulting the bar should always be at such a height that no change need be made to the *timing* and *rhythm* of his movements: with a very low bar an athlete will tend to reproduce movements that are foreign to those he is trying to master. Similarly, in hurdling it is important to progress quickly to the obstacle in competition for movements over very low hurdles (for all their value in the progressive stages) are different from those actually required.

(3) Programmes of coaching should be so planned that the teaching of similar skills is avoided. For example, as there is a strong similarity in the techniques of Shot and Discus they should be taught separately. The greater the similarity of skills the greater is the likelihood of one set of movements interfering with the other.

(4) Competition in athletic events should not be introduced until the fundamentals have been learned, for in competition an athlete tends to rely upon only well tried and trusted co-ordinations.

(5) Relaxation, important as it is in the finished movement pattern, should not be emphasised in the very early stages, as too much stress on this aspect may increase the difficulties of learning the earliest skills. A relaxed position will result from intelligent repetition of the complete movement.

(6) At all times, the performers must be made to feel that they are moving towards an attainable goal.

(7) The teacher or coach must recognise that progressive stages are merely an aid to class teaching and do not dispense with individual instruction and coaching. It must also be realised that one must set out to teach *not* sports gymnastics, but the skills of sport.

CHAPTER THIRTEEN

RUNNING

ATHLETIC running has to be taught. It is not something which is developed naturally (save in exceptional cases) and as in all other athletic events, there are certain technical fundamentals in which definite instruction must be given before the end of the adolescent period.

It is far easier to develop a good running technique in the young child than to try to eliminate faults in already established habits; but if the faults are there, an effort must certainly be made to eliminate them.

All types of running, from sprinting to long distance, are basically the same, differences being due only to the individual interpretation of the technique, i.e. 'style', and to the minor modifications (mainly in 'pace') made to suit the requirements of a particular type of race.

For example, the sprinter's movements are fast and extremely powerful because he is trying to ensure a maximum speed over a relatively short distance, whereas the long-distance runner moves at a slower pace to conserve his energy and to spread it out evenly over a greater distance and a longer time.

THE TECHNIQUE OF RUNNING

The drawings in Figs. 1 and 2 are taken from a series of action photographs of two great athletes. Fig. 1 depicts the middle-distance running action of the great Swedish miler, Gundar Haegg. Note that the head is at all times maintained in natural alignment with relaxed shoulders. There is a slight forward tilt of the trunk which swings naturally to counter-

balance the leg action below; the arms, flexed at about a right angle, are carried with palms unclenched and with the elbows swinging just clear of the body. The upper-arm swings to the rear of the trunk line but not ahead of it.

Here Haegg lands, and keeps on the balls of his feet in contacting the ground. Most middle-distance runners permit the heel to touch the track lightly (after contact with the sole) before rolling forward on to the ball again, and the longer the distance run the greater the tendency there is to use such an action. This variation should be taught in schools. In all good running the toes point along the line of running.

A study of the actions of all accomplished runners reveals that there is much more foot and leg action behind than in front of the body. This is in itself an indication of the stress that should be laid on the different phases of a stride cycle.

With a downward and backward motion, the foot contacts the ground. It should be permitted to come to earth naturally, i.e. without an attempt at stretching out to increase the length of stride, for overstriding is an extremely wasteful and tiring movement. In fact, at school it is advisable to 'play down' the admiration that most boys seem to have for great length of stride; and one should stress that improvement in the length of a stride should and will come mainly from increasing the power of the limbs and the flexibility of the joints.

Although the foot does come to ground slightly in advance of the body, in teaching no mention should be made of this *clawing* action, otherwise overstriding and a slight checking at each stride will ensue. The body-weight then passes over the foot and leg in what is primarily a *supporting phase*—although body-speed is being built up through a powerful extension of the thigh of the supporting leg. It is here that the heel either drops to touch the ground or, as in sprinting, is lowered very close to it. The flexion at the knee joint is greatest at this moment.

As the thigh extension continues, the body-weight passes

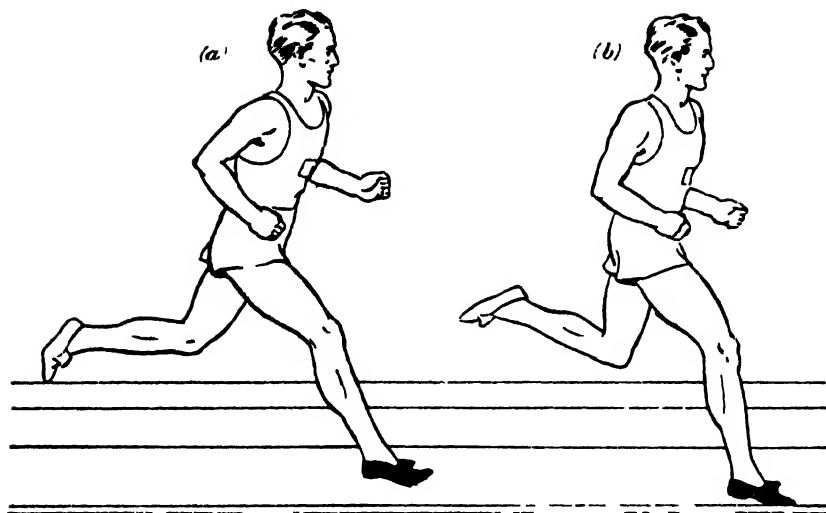


FIG. 1

ahead of the supporting foot, and the final movements of thigh extension are joined by extension at the knee and ankle joints, whilst the body is thrust forward and slightly upward. This is what has been called the *driving phase* and—if, indeed, it is necessary to emphasise any one of the phases mentioned—*this* is the movement to be stressed most in teaching school children.

Following the drive and the breaking of contact with the ground, the rear leg then automatically folds up by reflex action to shorten the leg-lever and to bring it forward, under and ahead of the body, in as economical a fashion as possible for the next stride. As this leg swings beneath the body in this *recovery phase*, it will often fold up to the point of almost touching the corresponding buttock with the heel, and provided the thigh is swung to sufficient height in front, this is a correct action. Thigh lift actually varies from athlete to athlete and from one running event to another; the more powerful the leg drive, the more pronounced the lift. As the thigh swings

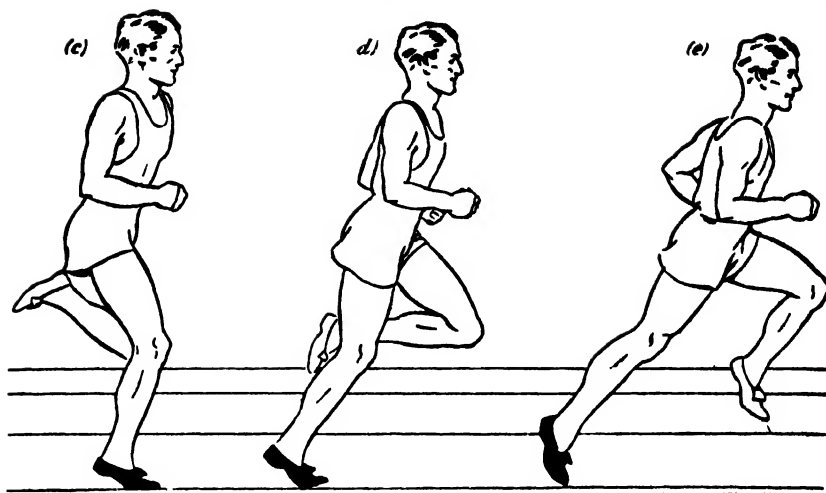


FIG 1

ahead of the body the lower leg unfolds, reaches the limit of its pendulum-like swing from the knee, and is actually swinging back when the foot contacts the ground again.

Fig. 2 shows the action of a first-class sprinter. It will be seen that fundamentally the movements are the same. But here the athlete moves with the more pronounced forward body-lean of the orthodox type of sprinter, though others often have a more upright trunk carriage. There is less lateral swinging of the shoulders because the arm action is much more pronounced, emphasising a backward-and-forward motion. The sprinter moves rather higher up on the balls of the feet than the distance runner.

It is as well not to mention the question of breathing—except perhaps to tell the boys to breathe naturally at all times. In all forms of running the strenuous effort of sprinting calls for breathing both through the nostrils and an open mouth.

In teaching running it is essential that the interest of the boys is maintained throughout their periods of instruction,

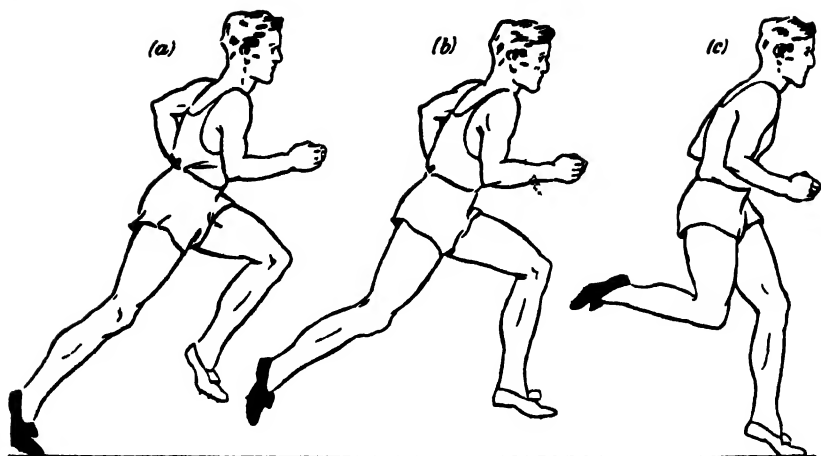


FIG 2

and this cannot be done if the physical aspects alone are stressed.

A boy must be taught that he runs with his mind as well as with his legs and feet. With few exceptions sheer boredom will result if the performer is merely required to run in a technically correct manner round and round a field, or along a line or an athletic track or over a known stretch of country.

Stimulation and encouragement must be given at all stages by the teacher, and wherever possible all running practices should be made objective. An excellent method of maintaining interest, particularly in middle- and longer-distance running, is by encouraging the performers to acquire a judgment of pace. This can most easily be done by setting them the task of running known distances in given times—but it is most important that the times that are set are well within their powers, otherwise there is grave danger of over-exertion and a destruction of the good running habits which you have been trying to teach.

A simple practice for the development of pace-judgment follows.

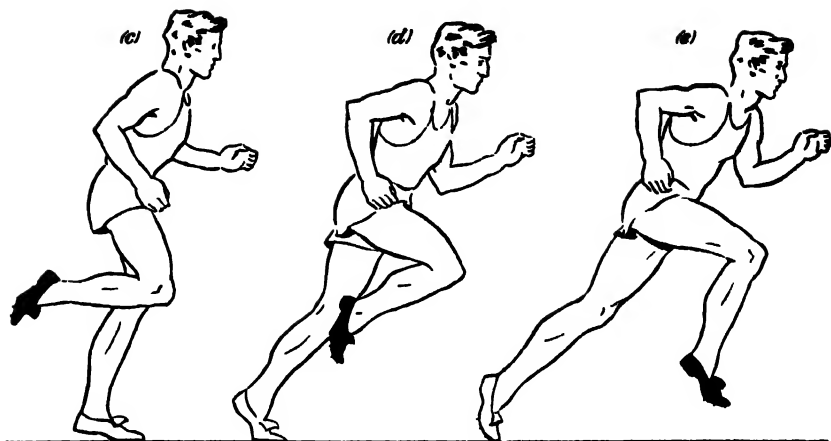


FIG 2

The set task is to get a performer to run 440 yards at an even pace in, say, 76 seconds on a quarter-mile track. At distances of 110 yards apart stick posts or flags in the ground. The distance between each flag must be covered in 19 seconds. Start the performers, and then at the end of each 19 seconds blow a whistle.

By this means the boy will soon realise whether he needs to increase or decrease his speed in order to cover the next 110 yards in the given time. In the earliest stages, of course, only distances of 110 yards need be run, then as proficiency increases, 220 yards, 330 yards and finally 440 yards will be attempted.

Similarly, as the boy learns pace-judgment the whistle signal need be blown only at the half-way stage, and finally only when the 76 seconds have elapsed.

RUNNING PROGRESSIONS

In the Gymnasium

(1) Slow running around with arms dropped loosely at the sides and as relaxed as possible. Strides should be short and the head kept in natural alignment with the shoulders.

(2) As above, with the action of the arms introduced. The hands are brought up to hip height, the fingers are curled loosely and the arms swing in relaxed fashion only slightly across the body (Fig. 3).

(3) As for (2) above, but the class now runs on the spot with



FIG. 3



FIG. 4

the knees raised well in front (but not high raising). The feet should never pass behind the line of the body to the rear.

(4) As for previous progression, but now the class runs around the gymnasium. At this stage, of course, the feet *do* pass behind the line of the body in drive and recovery but the 'feel' is the same.

(5) Running on the spot on any line in the gymnasium, keeping the feet parallel to and only slightly on either side of this line. (Watch and correct the tendency for the knees to point outwards in this exercise.)



Action Photos

P. Radford (A.A.A.) winning 100 yards from E. R. Sandstrom (R.A.F.) in
9 6 seconds to equal British record, 1958.

(6) As above, landing on the ball of the foot and letting down lightly on the heel.

(7) Running, keeping the feet parallel and only very slightly on either side of a straight line (Fig. 4).

(8) Running around the gymnasium, alternating between



FIG. 5

(a) running well up on the balls of the feet, (b) landing upon the ball of the foot and gently dropping the heel (but not to ground), and (c) landing on the ball of foot and letting the heel down lightly.

Outdoors

(9) As for previous progression, alternating the speed, i.e. using a fairly fast pace for alternatives (a) and (b), and a medium pace for (c).

(10) Relaxed running with a fairly high knee raising and a good stretch, i.e. pointing the knees well forward as well as upward (Fig. 5).

(11) *Sprint Arm Action*.—Upper and forearm at an angle of approximately 90 degrees, and kept so all the time; the swinging to be loosely hinged at the shoulders and with a slight emphasis on the backward swing. The hands swing to

shoulder height in front and to hip height to rear (slightly behind hips). The forearms swing only very slightly across body (until hands are in line with chest centre) (Fig. 6). Medium-paced running, alternating with fairly fast stretches in which the class concentrate on these movements.



FIG. 6

(12) Gradual acceleration up to a line and then fast running through for about 30 yards (sprint action), followed by an easy slow down over about 50 yards.

(13) Shacking (very slow jogging) with arms relaxed completely, followed by jogging with arms flexed at hip height; followed by 50 yards at the pace of a lap in 70 secs. Concentration should be on good form.

(14) *Pace Judgment*.—Running at 110, 220, 330 and 440 yards intervals (flagged) to a predetermined pace and checked by watch and whistle. (See page 131.)

CHAPTER FOURTEEN

STARTING

ALTHOUGH a crouch start is used in first-class athletics for all sprinting and hurdling races, and by a majority of middle-distance athletes, it is doubtful if small children derive any benefit at all from it, even in a sprinting event, because they lack the co-ordination of movement required to do it correctly. Speaking generally, therefore, children below the age of eleven ought to be taught only a standing start, as shown in Fig. 7.

From such a position the line is 'toed' with one foot in front of the other. The feet are spaced comfortably, and generally should not be more than shoulder-width apart (i.e. longitudinal spacing), with slightly more weight on the front leg than the rear one. The trunk should lean forward, and the arms, flexed at about a right angle, are held in readiness and co-ordinate with the leg positions below, i.e. with the opposite arm to the leading foot forward.

There should be a natural running action from the mark; the front foot remaining in contact with the ground until a moment before the rear foot



FIG. 7



FIG. 8

strikes the track in front of the line. There is no necessity for the leading foot to be 'dabbed' down (as is so often done) before the rear leg takes its stride forward.

It is generally accepted that a crouch start, properly carried out, is faster than a standing start, as it will get an athlete away from the starting-line and into his running more quickly. This is mainly because the forward disposition of body-weight balances the considerable acceleration of a sprinting start. A crouch position also gives optimum flexion at ankle, knee

and hip joints, so that the greatest possible power of muscle contraction is assured.

The following stages are suggested for teaching this type of start to school children:

(1) The teacher, without preliminary explanation, demonstrates the 'On your marks' position to the class, and on a hand-clap or word from the teacher, the children attempt to adopt a similar position. The teacher then asks those who have their *left* feet backward to stand up. (There will almost invariably be a minority of such people in a large group.) This first stage is therefore used to determine the stance which the children naturally prefer, i.e. whether they prefer to have the right or left foot backward. They are then asked to remember their preference and to stand up.

(2) The second progression involves much more detailed movement, which the teacher should demonstrate.

(a) From an erect position an easy pace forward is taken

with the foot naturally put forward in the previous stage. The toes should point directly to the front.

(b) Without moving this front foot the class then kneels down, placing the knee of the rear leg directly opposite the hollow of the front foot, and about two inches to the side of it. The toes and knees point directly ahead, parallel to each other, and the rear foot is curled so that purchase may be obtained later in starting. Each child sits back on the rear heel, with trunk quite upright, head in natural alignment with the shoulders and with the arms relaxed to the sides (Fig. 8).

(c) The success of the next stage depends entirely upon the ability of each child to relax the arms completely. The trunk is slowly leant forward until the hands, shoulder-width apart, contact the ground or floor. The distance between the hands and the toe of the front foot will then quite naturally be determined, but if the trunk is thrown forward too vigorously, or the arms are not relaxed and the pupils reach forward to touch the floor, the distance will be wrong. In such circumstances the only alternative is for the teacher to give an arbitrary measurement for everyone (e.g. the length of a person's foot) for the distance between the hands and the front toes; but as this will give an inaccurate distance for many of the children, it should only be used in extreme cases.

(d) The hands and arms are then put into their correct position. Without altering the distance between the hands and the front foot, the teacher shows how the thumb and forefinger are placed just behind the (imaginary) starting-line, with the remaining fingers splayed



FIG. 9

around to form as high a bridge as is comfortably possible. The arms are not flexed at the elbows (Fig. 9), and the head remains in natural alignment with the shoulders. (*Note*.—This position is a correct one for starting with spiked shoes and/or supports. When starting in plimsolls, and with no supports, it may be difficult to obtain sufficient purchase from the front foot—as the shoes may slip. This is especially true when starting on a gym. floor. Therefore, for the actual starting stages of instruction it may be necessary to bring the front foot about three inches nearer the line, thus bringing the body-weight over, rather than beyond, the front foot. Such a modification, however, should be avoided whenever possible.)

(3) The children resume a standing position, and work under the teacher in pairs ('master' and 'pupil'). The 'master' ensures that the feet and knees are in their correct positions, and then measures (by spanning with the fingers or by using knuckles and fists) the distance between the line of the front of the fore-fingers and thumbs and the front toe. These distances are remembered by each individual and the class changes round, 'master' becoming 'pupil', and vice versa.

(4) Only at this stage is the starting position adopted *using a starting-line*. Knowing their distances, the class measure from the rear edge of the line to the point to be toed by the front foot. This can be marked on a gym. floor by using chalk, or the mark may be scratched on the ground. They then stand about three yards behind the starting-line before receiving the order 'On your marks'. Then they walk forward and get into the position described in (2) (a), (b) and (c). Once there, the children must be taught to remain quite still, for the next starting command cannot be given unless this is done. This whole movement should then be practised in pairs.

(5) The next progression is the teaching of the 'Set' position. This command should be given in such a fashion as to suggest



FIG. 10



FIG. 11

the type-of movement required. On this word the performer pivots forward over straight arms to raise the rear knee off the ground until the point of the hips is only slightly above the shoulders (Figs. 10 and 11). They must *ease* themselves into a position in which the weight of the body is roughly shared by the arms and the front leg, only a little weight remaining on the rear leg. Ideally, the shoulders should be slightly in advance of the hands in this position (i.e. over the starting-line), but this calls for considerable finger and wrist strength, not usually developed in young boys and girls. A vertical arm position is therefore permissible. The head should remain in natural alignment with the shoulders, and the eyes should gaze at a spot about two yards in front of the line. This position cannot be held comfortably for more than six or seven seconds. When they have had two or three attempts at the position, the class is then given the command 'Set', and then told to take the hands away. If they are in the proper position they will fall gently forward.

(6) The above is then practised on a 'master' and 'pupil' basis. Both orders, 'On your marks' and 'Set', are then given, the pupils walking forward from a point about three yards to the rear of the line.

(7) The class, in the standing position, practise the sprinting arm action (which should already have been taught in their

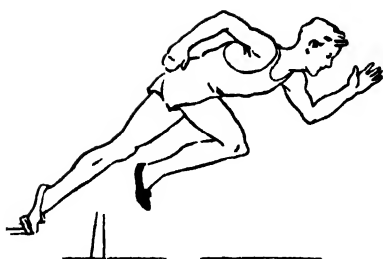


FIG 12

running instruction) with the arms flexed at about a right angle, forearms relaxed, and with the hands swinging only very slightly towards the centre line of the body to shoulder height in front and hip level behind (Fig. 6). This, they are told, is the arm action used in sprinting, and it has to be used

from the very first stride. (Children tend to neglect the proper arm action on the first stride and only *then* use their arms to accelerate. Correct action is shown in Fig. 12.)

(8) This action is then practised over a distance of about five or six yards, and at about three-quarter effort, while running naturally from the marks. Jumping, lunging, overstriding and weaving (running with a pronounced twisting motion) are unnecessary and retarding movements. The pupils should ease down gradually after each attempt. The teacher should correct any tendencies to assume an erect position too quickly or, conversely, to stay down for too long. (The actual rate of trunk rise will depend upon the decrease in the rate of acceleration, which is a varying factor.)

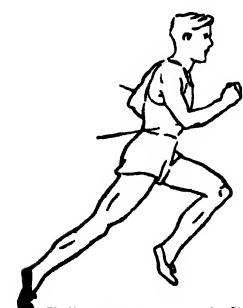


FIG. 13

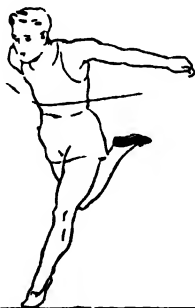


FIG. 14

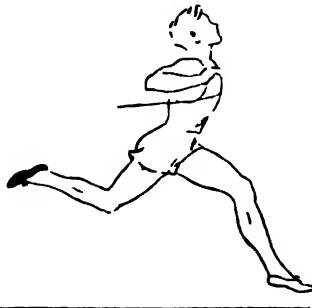


FIG. 15

(9) Out of doors, a finishing-line is drawn twenty yards from the start, and worsted is stretched over it at a height of four feet. The class is then taught to run naturally through and beyond the tape from a crouch start, and to ease down over a distance of about forty yards. (Fig. 13 correct; Figs. 14 and 15 incorrect.)

CHAPTER FIFTEEN

RELAY RACING

ON the School Sports Day, the usual climax of the events is the inter-team or inter-school relay race, when excitement and enthusiasm both on the part of spectator and competitor alike reach their highest pitch. Individualism gives way to a team spirit that brings with it enjoyment and an incentive to rise to great heights of performance for the team.

Experience has shown time and time again that an athlete's performance in a relay race is often far better than anything he or she ever reaches when running as an individual. This form of competition represents all that is desirable in athletics, and popularising it in schools and clubs would do much to raise the general standard of athletics throughout the country.

The school child should be given every opportunity of mastering the skills and of taking part in relay contests. The emphasis, however, should be on short distances, for in such races the skill factor becomes dominant, and the danger of physical exhaustion due to children over-exerting themselves for the sake of the team is largely eliminated.

Any school athletics scheme should provide instruction and coaching in both visual and non-visual methods of baton exchange, and also in shuttle change-overs, though the last-mentioned method is generally unsatisfactory and wherever possible should be avoided, except when lack of track space does not permit a circular course, or in a hurdles relay when it is essential.

'TAKE-OVER ZONE'

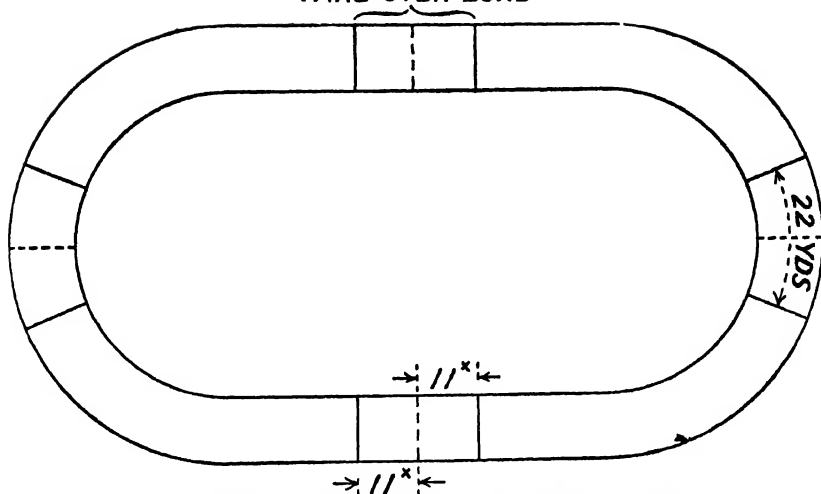


DIAGRAM 21.—TAKE-OVER ZONES IN RELAY RACES

NON-VISUAL EXCHANGES

The two most popular types of sprint relay—where the non-visual pass is used—are the 4×110 yards and the 4×220 yards events. But these distances are too great for certain age-groups in schools (if it is intended to teach a sprint-relay event), so that it is often advisable to shorten the 'leg' run by each boy to, say, fifty-five yards. In any case, we advise a shortening of the distances to be run by each boy when instruction in the method of exchange is being given, because (a) racing over shorter distances places a greater emphasis on the importance of proper passing of the batons, and (b) it facilitates more frequent repetition of this type of work during a period.

In the 4×110 yards event, or in relays of shorter distance, all competitors should run in lanes, with each team having a lane of its own. Where the relay takes place around a track, therefore, starts must be staggered to compensate for the extra distances which would otherwise have to be run; this further demands that all take-over zones (each twenty-two yards long)

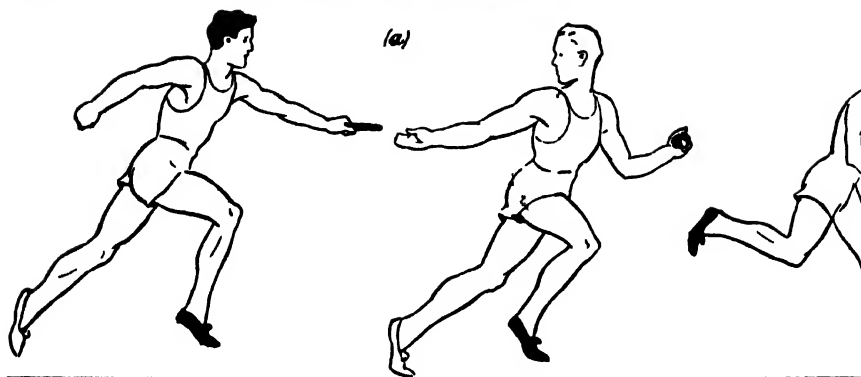


FIG. 16

are also staggered. In Diag. 21 an inside lane marked out for the 4×110 yards event is shown. (See also Diag. 9, page 67.)

The rules of relay racing demand that the baton must be passed between the restraining lines marking the extreme ends of the change-over zone. Moreover, they state that both athletes must be inside these lines at the moment of exchange. The baton has to be passed, not thrown, from one athlete to another. The rules now state quite clearly that the outgoing runner may not start his run outside the zone; in other words, he has only something less than twenty-two yards in which to accelerate before taking over the baton.

In the sprint relays this twenty-two yards is not really sufficient distance in which to permit the outgoing man to gain full speed, yet he must do the best he can. If the baton is to be taken over without great loss of speed, this outgoing runner certainly cannot afford to take it looking round and reaching back (as in Figs. 16, *a*, *b* and *c*, and 17), for by so doing he would find it impossible to leave the zone at a sprinting pace.

Thus, to make it possible for him to generate the maximum speed within the zone, and at the same time to receive the baton with a fair degree of safety, a 'blind' pass is made (Figs.

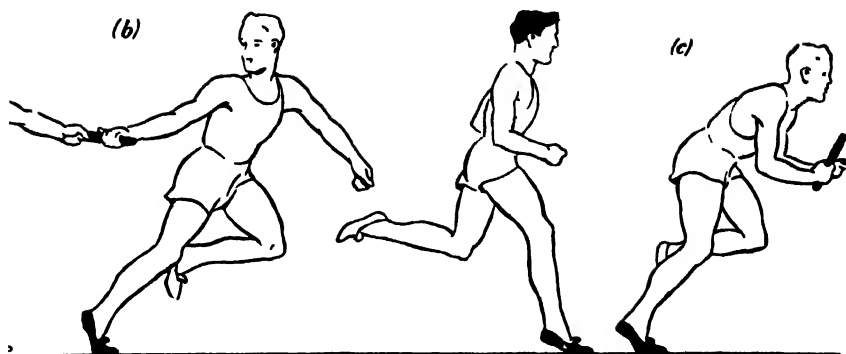


FIG. 16

18 and 19, *a-d*). A good exchange will occur within a yard or so of the far restraining line, so as to give the outgoing runner the longest possible 'take-off' before he receives the baton. The timing of such an exchange depends largely upon the outgoing runner's starting at the proper time; for if he starts too soon the incoming athlete will fail to catch him inside the zone and disqualification will result, but should he, on the other hand start running too late he will have been caught after making only a few strides, i.e. long before he has had time to gather speed.

To help him gauge the moment of his get-away, he should make a mark on the track (a piece of paper or a line scratched on the ground will serve admirably) about six and a half yards to the rear of the first restraining line, though the actual position of this mark will depend entirely upon the relative speeds of incoming and outgoing athletes; e.g. if the outgoing man possesses a relatively fast get-away, this distance should be shortened and vice versa. When the incoming runner reaches this mark the outgoing athlete commences to move forward.

In gathering speed it is important for the outgoing runner always to employ the same movement pattern. His starting position (Fig. 20), initial movements from it, arm action and



FIG. 17

the placing of the receiving hand so as to provide the incoming runner with as large and as steady a target as possible should always be performed in exactly the same fashion each time, so that the acceleration from the standing position is the same each time. Only in this way can the mark on the track be used as a reliable guide. The method of exchange shown in Figs 18 and



FIG. 18

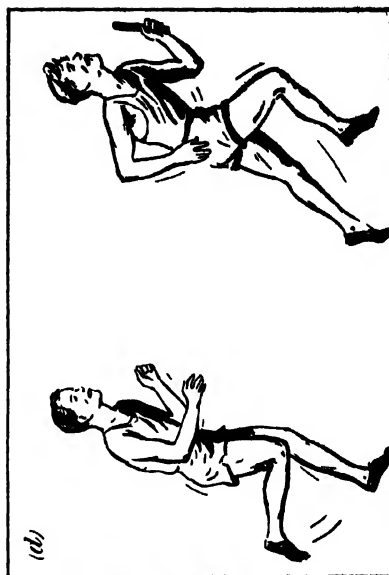
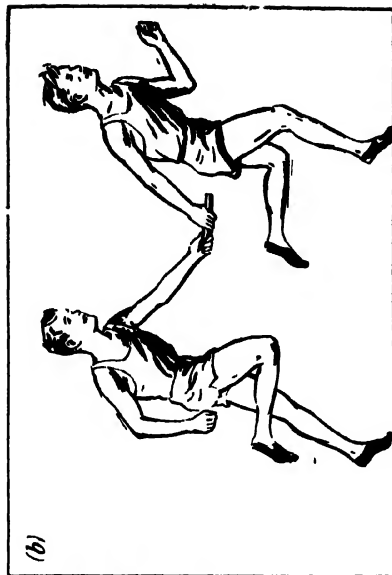




FIG. 20

19, *a-d* is the one most suitable for use in schools, although there are other successful methods used in international competition. The method recommended has the virtue of giving a considerable distance between the runners at the moment of change and, because all the changes are identical, i.e. from left hand to right hand, alterations in the order of running are not too difficult.

Selection of Runners in Sprint Relays

In selecting an order of running in a house or school team the following points should be considered:

(1) The boy selected to go first should be a steady starter and, ideally, he should also be the fastest member of the team over about 117 yards. This is the boy who runs with the baton over the greatest distance. Usually, therefore, it is advisable to let your best performer run first.

(2) The second and third runners have two movements to master to the other's one, for they must learn to receive and to hand over correctly. Moreover, these should be your strongest runners, since before running 109 yards with the baton they must sprint for about eighteen yards to gather speed, which means that they are required, therefore, to run a total distance of about 127 yards.

(3) The last man has only to receive the baton. Carrying it he runs only about 101 yards (when exchanges are good) and a total distance of 119 yards. His speed affects the baton least of all; yet, ideally, he ought to be the type of boy to work well in a fighting finish.

(4) Boys with very long strides cannot usually take bends at speed as well as those with shorter strides. The position of the start, track shape and the lane drawn determine which runners shall do most of the running around the curves, and these may cause some slight modifications to the suggestions given above.

(5) Those who have to start on sharp bends may find it advantageous to begin on the *outside* of their lane, looking over

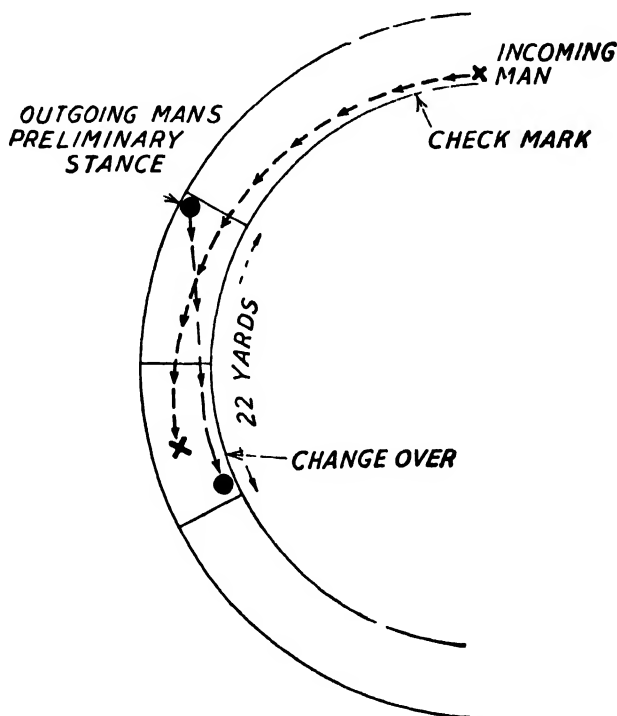


DIAGRAM 22.—TAKING-OVER ON A BEND

the *inside* shoulder, so as to be able to accelerate across the lane in as straight a line as possible (Diag. 22).

(6) Boys are human beings with personalities and temperament. They have their preferences and, within certain limits, these must be considered in finally determining the order of

running. The order of running of an opposing team ought *not* to be taken into account in the sprint relays.

(7) In the 4×220 yards relay only the first two boys run in lanes all the way, and in their cases, starts and exchange zones are staggered. The other two must take over the baton in the station drawn by their team, and between restraining lines twenty yards apart, but they may 'cut in' for the inside of the

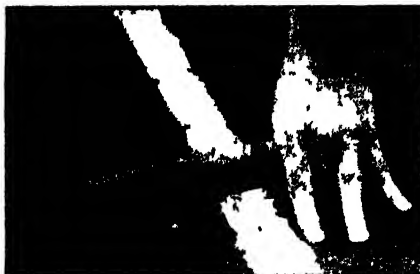


FIG. 21



FIG 22

track as soon as they are at least two yards in front of an opponent.

In the physical education lessons the boys should be given an opportunity of running in all four positions.

(1) Non-visual (Sprint Relay) Technique

The following progressions are recommended (stages marked * are suitable for gymnasium activity):

(a) * The class are shown how to hold a baton (in the left hand) (Fig. 21) and how to get to their marks (Figs. 22 and 23).

(b) * They then practise the outgoing runner's preliminary stance (Fig. 20).

The following points are worthy of note:

(1) The runner is inside the first restraining line.

(2) Legs are flexed, with more weight over front foot; toes to front.

- (3) Arms are held in readiness to co-ordinate with initial strides.
- (4) Runner glances back over right shoulder but keeps hips and shoulders almost square to front. (The class is told to gaze at spot on ground or gym. floor, reason being given.)
- (c) * The boys are then shown how, with fingers and thumbs widespread and with the palm facing the rear, the right arm is



FIG 23

held extended so that the hand is about at hip height (Fig. 24). From the position previously described (*b*), and remaining stationary, they then practise a seven- or nine-stride arm action with the right hand placed on the hip in a receiving position on its seventh and ninth backward swing and with head turned to front. The other arm continues to move backward and forward in the sprinting action. This can then be tried at a walk and then on the run.

(*d*) * They then jog, or run steadily in pairs—around the gymnasium or track—one behind the other. The boy behind passes the baton in his left hand into the properly placed receiving hand of the boy in front—who immediately transfers it into his left hand. The passer then jogs to the front and the

drill is repeated (this makes an effective warming-up activity). The teacher should insist on correct handing-over and taking-over techniques.

(e) For the next progression boys may work either in fours or pairs. If there are to be four boys to a group, two will run (one handing over and the other receiving), and the others will watch to see if the outgoing runner starts at the proper time and the position of the exchange in relation to the second restraining line. This practice also gives the boys a desirable 'breather' between sprinting efforts.

A mark is then made on the ground seven walking paces before the first restraining line (i.e. before the incoming man reaches that line). This is only an approximate measurement, and may have to be altered according to the relative incoming and outgoing speeds of the performers. One boy gets down to his marks, with baton correctly held in the left hand, thirty yards before the first restraining line, and then sprints towards his partner, who has adopted a standing start just inside that line. When the incoming runner hits the mark the outgoing man begins his sprint, placing his hand in a receiving position on the seventh or ninth stride (according to instructions given by the teacher). The incoming boy should not reach out until within striking distance of his partner (Figs. 18 and 19, *a-d*). The receiver should pass the baton into the left hand immediately upon receipt (Fig. 19, *c* and *d*). The onlookers should criticise the take-over and recommend changes, where necessary, in the position of the starting-mark. Occasionally the teacher should select one or two pairs to demonstrate to the rest of the class.

(f) Teams of three or four are then formed, and these practise together before racing against one another over a total distance of 150 yards (a *straight* course), with the twenty-two yards exchange zones clearly marked.

(g) The boys then work as for progression (e), but now they practise on bends. The outgoing runner should now stand on

the outside of his lane and glance over his *inside* shoulder, cutting across his lane in the acceleration. Incoming men here, and in all other practices, should be taught to remain in the lane until all other teams have also exchanged the baton and passed them.

(h) Contests are then held around a track, with starts staggered. These can either be held with several teams running



FIG. 24

at the same time, or each team, in full view of the remainder of the class, can be told to run against the watch. In this fashion the onlookers can be told to criticise technical points. If this practice is taken as a race, known weak teams should be given time handicaps. It should be noted that it is necessary to alter the position of the check mark when the distance over which the incoming athlete runs is changed. The adjustment is usually only of a minor nature, but is, nevertheless, essential.

(2) Visual Exchanges

This method of exchange is used whenever the outgoing man is uncertain of the incoming speed of his team mate. In a relay of 4×110 yards this incoming speed should be constant (to all practical purposes), but in such an event as 4×440

yards, or any longer relay, the outgoing runner obviously cannot depend upon his team-mate finishing at the same speed from one race to the next. Therefore the receiver has to 'weigh up' the finishing effort of the incoming man and to adjust his start accordingly. If the man finishes strongly, the outgoing man can afford to take a run of several strides to gather speed before reaching back for the baton (the change-over here



FIG 25

should take place rather nearer to the far restraining line); but if the incoming man finishes in a very fatigued state, the next runner may well have to receive the baton just inside the first restraining line, i.e. before his team-mate has actually run his complete distance.

Visual Technique

(a) * Starting from a standing position, the class practises running along a line, or in lanes, with the receiving arm outstretched behind (Fig. 25) and with the head turned back to gaze at the incoming man. An occasional glance is taken to the front to ensure steadiness. This should be practised over a distance of about fifteen yards.

(b) * As above, the incoming man handing over baton with a good forward reach (Figs. 16, *a*, *b* and *c*, and 17). (*Note*.—In medley relays the type of exchange between runners will depend upon the distance run by the incoming man; e.g. where a 220-yards runner takes over from a half-miler the visual exchange should be used, but a sprinting exchange should be used if the 220-man passed to the half-miler. Occasionally, therefore, the boys should be given imaginary incoming and outgoing distances to see if they appreciate the exchange method to be adopted.)

(3) Shuttle Technique¹

Sometimes, through lack of space, teachers have no alternative but to include this type of event in the school sports, but there is no really satisfactory way of deciding when one runner finishes and when his team-mate shall start. The shuttle exchange therefore has led to considerable controversy on many occasions. Whenever it is possible, all relay races on the flat should be run with batons, and all the athletes should run in the same direction at the moment of exchange.

For relay hurdling races there is no alternative, however, and the shuttle relay hand-over technique should be reserved for this type of event alone.

Shuttle Relay Technique

(a) * Boys work in pairs. One gets into a crouch position (no baton, of course) and the other runs in to touch him, in passing, on the shoulder; only then should the first boy move off. Runners should pass right shoulder to right shoulder, and the boys should touch only lightly, so as not to throw the outgoing boy off balance (Fig. 26).

(b) * Whereas both runners in the previous progression were running in the same lane, the incoming boy now runs in a different lane to the outgoing runner. The exchange should therefore no longer be by touch; the moment of starting is left to the discretion of the outgoing boy, who must decide when the other boy's torso has reached the finishing-line. As a general (but by no means infallible) guide, the outgoing runner should be told to run as soon



FIG 26

as a foot of the incoming athlete crosses the line. This shuttle exchange is used in hurdle relays where the international type of hurdle (which cannot be cleared from both sides) is used, and each team therefore has to be given two complete flights of hurdles in two separate lanes.

CHAPTER SIXTEEN

CROSS-COUNTRY RUNNING

THERE has always been considerable controversy on the merits or demerits of cross-country running in schools.

In the Secondary Modern School and the Secondary Grammar School there is much to be said for its inclusion in the Athletic Section of the Physical Education Scheme, provided that the instruction is in the hands of someone who has had experience of the sport, and who realises fully the general and particular dangers to the children taking part.

Cross-country running taught carefully and sympathetically can have undoubted value in building up body physique, stamina and mental determination, and in addition can provide interest and enjoyment in athletics to children who would perhaps evince no desire to participate in the normal track and field programme.

In introducing the sport it is most important that the following conditions should be fulfilled.

(1) First and foremost, no boy should be compelled to take part in cross-country running. If compulsion is used, one of the most vital factors in any sport, enjoyment, is eliminated immediately. This will lead to a mental resistance, not only to the sport itself, but also to the acceptance of any coaching advice that is given.

Though compulsion must not be used, the merits of the sport warrant considerable effort upon the part of the teacher in trying to persuade all medically fit boys to participate, providing, of course, that the distance a boy is asked to run is well

within his physical powers of so doing, and provided also that, within reason, he can set his own pace.

Boys should be taught, right from the earliest stages, how to spread their effort over whatever distance is being run at however slow a pace, so that at all phases of the run they always have a reserve of strength in hand and are thus never likely to approach a state of exhaustion.

It has been shown by experience that if these conditions are fulfilled, the average boy will acquire a liking for cross-country running.

(2) In view of the above remarks upon the medical fitness of the child, it is obvious that there must be the closest possible liaison between the responsible teacher and the school medical officer, and, in fact, no child should be allowed to take part in this, or for that matter any other branch of athletics, without some medical check upon the advisability of his or her participation.

(3) Cross-country running can be introduced into the Physical Education Scheme at or about thirteen years of age, though here, as in many other cases, it is impossible to be dogmatic. Everything will depend upon local conditions and traditions, the physique of the children, availability of suitable ground and the experience of the responsible teacher.

Note, too, that so far no mention has been made of cross-country *racing*, though it is obvious that sooner or later the children who have been coached in cross-country running will want to race; and providing that strict care and attention has been paid to all the relevant conditions, there is no real objection to such a race taking place not more than once a year for boys under fifteen, and not more than twice a year for boys over that age.

Suitable distances for *runs* can be as follows:

13-15 years of age—two miles.

15-17 years of age—two and a half to three miles.

Over 17 years of age—three and a half miles.

When the pupils have had sufficient coaching and practice, and the teacher is convinced that a cross-country race can be introduced, the distance selected should be half a mile less than the distances given for each of the above age-groups.

THE DEVELOPMENT OF CROSS-COUNTRY RUNNING

All runs must be most carefully supervised. They should begin over quite short distances, with the boys alternately walking and running short distances. In these early stages the teacher may have to curb enthusiasm which might lead keen boys to run too much and too quickly.

Assuming that the time-table permits of one run per week, there should be a gradual build-up over six or eight weeks so that the amount of walking done decreases and the amount of running increases.

To add interest and variety, the courses should be changed frequently, and every endeavour should be made to get as varied conditions as possible, so that the child gets experience in running over roads, field tracks and ploughed ground—up and downhill. In rural and suburban areas there should be little difficulty in doing this, but in urban areas it may not be so easy; the only usual solution being to take every advantage of the local parks, recreation grounds and public playing-fields.

Whenever possible, the class concerned in a run should be split up into packs. Four are suggested, these being:

Pack 1: The 'A' Pack, consisting of the fastest boys in the group. They should, however, not be referred to as 'the fast pack', or there will develop among them an almost overwhelming temptation to make every run into a race.

Pack 2: The 'B' or medium-paced pack.

Pack 3: The 'C' or medium-slow-paced pack.

Pack 4: The 'D' or slow pack.

In each of these packs one of the more responsible boys should be chosen as a pace-setter, and another boy or, wherever and whenever it is possible during a run, the teacher should

act as a whip to the pack. His duties should be to see that the pace set is correct; that is, not too fast so that the slow boy or group is not harried during the run.

A considerable amount of firmness is required in the early stages to get this system running efficiently, but time spent on it is well spent in that at no time are the performers likely to exhaust themselves; and what would otherwise become an aspect of athletic training to be avoided at all costs, becomes a pleasurable and eagerly awaited period of the week.

CHAPTER SEVENTEEN

HURDLING

DURING the past fifty years the technique of hurdling has undergone an amazing change. In the early days the emphasis was on *jumping* the fences, and so much forward speed was lost in the process that, on landing, an athlete had to start running again from an almost stationary position. As this happened no fewer than ten times in the course of the race, it is not surprising that the hurdling times of those days were extremely poor when compared with those of the present. To-day, any first-class hurdling event is *one fast and continuous dash from start to finish*.

The expert hurdler combines an almost unbelievable economy of clearance with the speed of the top-class sprinter. There is no interruption in the rhythm of movement. Hurdle clearance flows into the sprinting and the sprinting action flows back again into another clearance. The emphasis on sprinting ability is now so marked that several of the world's best hurdlers have clocked 9.6 secs. for the 100 yards flat and one, Harrison Dillard of the U.S.A., has won an Olympic sprint title in addition to holding world records for hurdling.

This type of event favours the sprinter of fairly tall, loose-limbed physique. Long and flexible legs are of particular importance. The short athlete is usually handicapped as a result of spending too much time in the air and having to overstride in between the fences. Hurdling is great fun, however, and therefore all boys should be taught the fundamentals.

This subject, however, ought not to be introduced into the

Physical Education Scheme until the fundamentals of running and starting have been taught, for the seemingly foreign and complex movements of the hurdler are in reality nothing but exaggerated running co-ordinations modified to suit a race over obstacles.

From the very beginning, the class should be made aware of this relationship. They should find the teacher teaching a *running* event. All progressions should be based on the slow raising of a cane or bar with the pupils trying, as far as possible, to maintain a natural running action. They should hear constantly that, "Hurdling is sprinting"; that "Hurdle races are won on the ground". A teacher should always refer to 'clearing' and *not* 'jumping' the hurdles—to emphasise an essential difference.

Although there are three popular hurdling events—the 220 yards Low Hurdles, 440 yards Intermediate Hurdles and the 120 yards High Hurdles—most hurdling events in schools correspond to the 120 yards event of adult competition, and we shall therefore confine our remarks to High Hurdling technique. (Suggested hurdling distances and measurements for schools are given on pages 77 and 78.)

The majority of high hurdlers use the medium type of start recommended in Chapter 14. The hurdler starts in the manner of the sprinter, yet he must attain his sprinting angle in sufficient time to take the first hurdle which, in adult and junior A.A.A. competition, is fifteen yards from the starting-line. This distance is usually covered in eight strides. Only exceptionally tall athletes have used seven with comfort, and few have been able to break successfully from the 'patter' of nine or more into the sprint-stride rhythm required between obstacles.

The majority of boys will get into a crouch starting position with their right foot back, and those who are to throw their right leg across the hurdle first in clearance need make no change to this starting position in taking eight strides to the first barrier. However, a hurdler using a left-leg lead across

the rail must learn to start with his feet reversed, i.e. with the left foot back.

The point of take-off for the first hurdle clearance varies from one athlete to another, but with any athlete the take-off spot will move back as the speed of his approach to the hurdle increases. Expert high hurdlers take-off about 7 ft. 3 in. from the hurdle. It is essential that the hurdler must get to this point comfortably, otherwise it will be impossible for him to take the obstacle easily in his stride (Fig. 27, *a*). Here we see that the take-off takes place from the ball of the foot and with the toes pointing in the direction of sprinting. The body-weight is actually ahead of this foot, with hips and shoulders square to the line of running.

As the leading thigh is picked up quickly for the clearance, the arm on the opposite side of the body moves out and down to balance the movement, and to bring the body-weight forward, and down, for a thrust *across* the barrier. The trunk cases forward from the small of the back, helped by this arm (Fig. 27, *b* and *c*). The other arm should be kept into the side and flexed at the elbow. The palms are best kept open for balance. Note that the leading fore leg swivels forward from the knee with the heel—rather than the toes—thrust towards the hurdle rail.

The dipping forward of the trunk, which began on the ground, continues in the air as the athlete flattens himself for the crossing. This is a movement based on the same mechanical principles as those of the lay-out in high jumping; it raises the seat and lower parts of the trunk in relation to the centre of gravity, making it possible to clear the obstacle with the minimum of upward movement. This movement is *not* emphasised when low hurdles are being cleared (Fig. 27, *c*).

Long before the seat has reached the rail the leading leg cuts over and down towards the other side. At the same time the athlete's rear leg swings out to the side and forward to clear the rail in a folded position in which the toes are 'cocked' to avoid striking the hurdle (Fig. 27, *d* and *e*). These leg move-

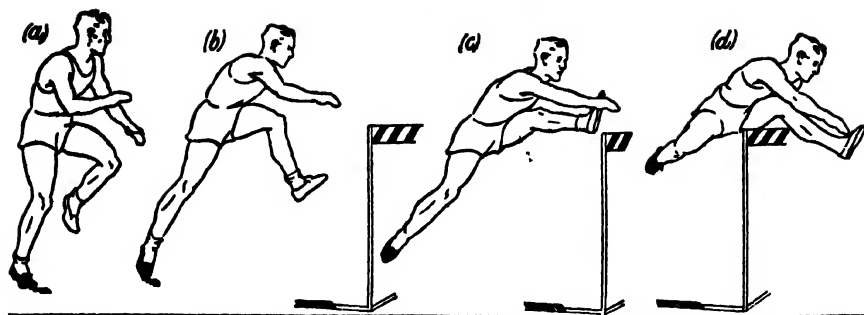


FIG. 27

ments are, in fact, inter-related and merely an exaggeration of a normal sprinting stride; the legs are on the move the whole time. There is no posed position. The proficient hurdler has sufficient hip flexibility to bring the rear leg through with this rotary action without throwing the trunk off balance in the air.

As the legs change their position, so do the arms. The arm which was directed out and down towards the hurdle rail at take-off now swings back, slightly flexed at the elbow and with the hand passing back low and to the outside of the rear knee (Fig. 27, *e*). The arm on the opposite side moves forward in sympathy with the rear leg. As a general rule, boys ought not to be taught to use a double-arm lead in hurdling, as this is actually contrary to the mechanics of sprinting (where one arm goes forward as the other moves back) and not essential to good hurdling. Moreover, it is an extremely difficult movement to execute.

The exaggerated dip of the body during clearance is now eased back into the sprinting angle required for the landing, which is now made on the ball of the foot of the leading leg (Fig. 27, *f*). In good hurdling the landing distance will vary from athlete to athlete, but with adult athletes it is usually somewhere between four and five feet from the hurdle. The body-weight should be slightly in advance of this foot as the

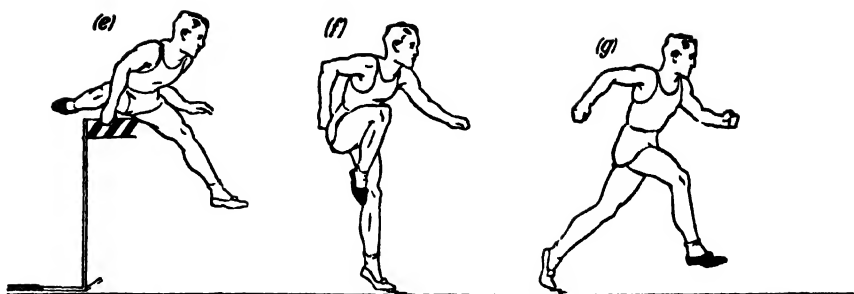


FIG. 27

rear leg, with the knee carried fairly high, swings to the front and down for the first of three fast strides between the hurdles. This rear-leg action is smooth and continuous from take-off to landing. Note that, as with the take-off, the supporting foot points in the direction of sprinting.

The take-off and landing distances quoted will apply to few boys, since they will often be clearing lower hurdles and, in any case, will seldom have the sprinting speed of an adult. However, the *proportion* of take-off to landing distance is applicable to them. It is also as well to note that take-off and landing distances and proportions change slightly as the hurdler gathers and loses speed; take-off distances over the second and third hurdles move away from the hurdles while the landing moves in towards them by about the same amount. As the athlete tires towards the end of the race, the take-off gets shorter and the landing moves farther away.

With a second take-off of approximately seven feet added to the landing distance of about five feet, the athlete has but eighteen of the thirty feet between the barriers to clear in three strides. His first stride (Fig. 27, g) will be about five feet in length, leaving thirteen feet to be covered in the two remaining strides—an easy matter for most adult sprinters. It is important to stress the use of the arms in sprinting between hurdles.

The technique of clearing hurdles may be summarised as follows. The hurdler tries to reduce the stride of hurdle clearance to the proportions of a normal sprinting stride. This in actual practice he can never hope to achieve, yet all except very short hurdlers must strive for this. The hurdler gets in as close to the hurdle as possible for take-off by using a fast leading-leg action. By dipping his body in flight his centre of gravity is lifted barely above the rise of a normal sprinting stride, and by getting the leading foot quickly to ground he gets back into his running at the earliest possible moment. The legs continue their running actions over the hurdle and the performer *comes down running*. Up to the first hurdle, in between obstacles and in the dash from the last one to the tape, *he moves as a sprinter*.

PROGRESSIVE STAGES IN TEACHING HURDLING

The following progressions are based on the premise that hurdling is a running and *not* a jumping event.

(1) The teacher has first to establish from which foot each class member prefers to take-off in clearance. Therefore the pupils are given free jumping, from a frontal approach, i.e. a straight jump—over a cane, rope or bar set at an easy height. After a series of these jumps each child should have determined the take-off foot of his preference. They must then remember this foot. (This is the only jumping to take place in these progressions.)

(2) The class is then divided into three groups—those of below average, above average and medium height—and work is carried out from three starting-lines marked out on the gym floor or on the ground. In threes the class adopts a standing-start position with the jumping foot toeing the line (this will in all probability conflict with their natural stance for sprint starting; i.e. they may have to reverse the position of the feet). They are then told to run (at about three-quarter effort) from one end of the gym. to the other or, if out of doors, over a

distance of about twenty-five yards. The teacher then places canes or bars so that they are straddled at the fifth and ninth strides for each group (Diag. 23). (*Note.*—Only one pupil from each group need be used for this progression, if the teacher prefers.)

(3) The class then runs over the canes or bars placed on the ground. They should be told to run for three or four strides, after stepping over the second cane, and to ease down gradually. Running actions and rhythms are unchanged at this stage.

(4) These obstacles are then raised inch by inch. This can

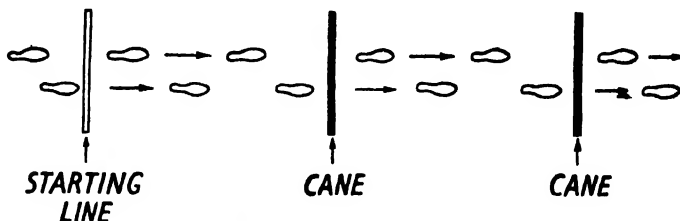
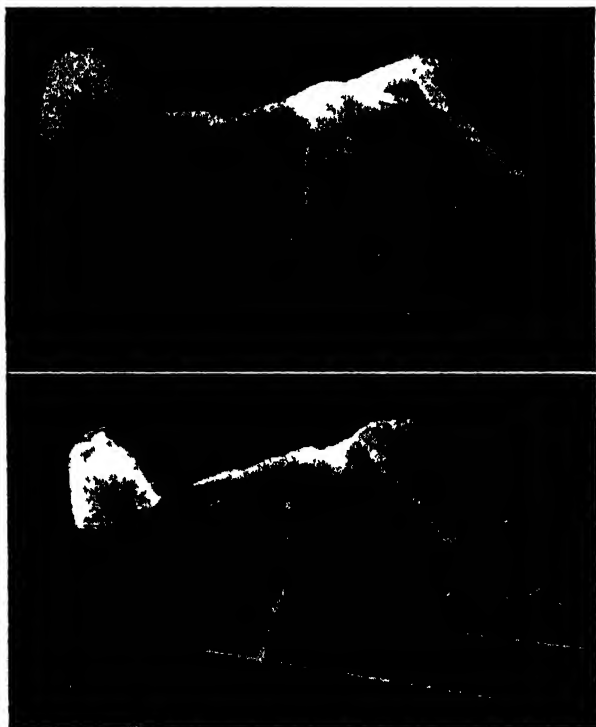


DIAGRAM 23.—STRIDES IN HURDLING

be done by placing the bars or canes on books or small blocks of wood. Alternatively, rectangular blocks of wood with holes bored in them vertically at one-inch intervals can be used or miniature high-jump stands designed. It will often be possible to obtain the co-operation of the teacher responsible for handicraft in the construction of apparatus. Out of doors, sticks of square or rectangular cross-section sharpened at one end and having either holes for pegs bored in them, or merely round-headed nails driven in at one-inch intervals, can be used.

At first the fifth and ninth strides are quite natural ones, but by the time the canes have been raised to a height of about six inches the class will jump—and pose in a striding position in mid-flight—in an effort to clear the leading foot. The bars are kept at this height until the children have learned to lift the leading foot up smartly (with its heel thrown towards the bar) and to put it down with equal speed to maintain the

cadence of striding; the movements of arms, trunk and the other leg are those of a normal running stride; there is no time-lag. Occasionally individuals should be told to hurdle over the bars while the rest of the class, with eyes closed, listen for any noticeable interruption to the rhythm of running, or for an



FIGS. 28 AND 29

over-emphasised beating down of the leading foot on landing ('dwelling').

(5) Continue to raise the bars gradually. With a greater distance to travel—up and down—the leading foot must be picked up and put down with greater speed. Eventually, and quite automatically, take-off and landing distances (hitherto

equal) will change their ratio. The take-off will move back and the landing will move in in relation to the hurdle. A fast pick-up of the leading leg should be stressed to get the children as close in to their hurdles as possible at take-off. This will ensure that they spend as little time as possible in the air.

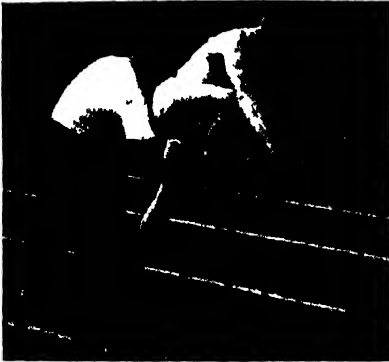


FIG. 30



FIG. 31

The leading leg must at all times be picked up and put to ground along a line *at right angles* to the hurdle.

(6) There comes a time when the bar is raised to such a height that it becomes necessary to modify the rear-leg movements—else the rear foot and knee will strike the bar or the child will leap high to avoid this. Therefore a lateral recovery movement of this leg is introduced; the reflex fold-up following the drive off the ground is accentuated so that the calf muscles contact the hamstrings, and the knee is swung well out to the side with the foot 'cocked' to avoid striking the hurdle with the toes. The leg then swings round and to the front of the body for the first landing stride (Fig. 27, *b-f*). Such a movement, if greatly exaggerated (as it has to be when the obstacle is a high one), tends to throw the hurdler off balance at each clearance. Therefore exercises have to be taught to induce sufficient hip flexibility to avoid this (see Figs. 28–34). It is also advisable



FIG. 32

to draw a centre 'line of direction' at this stage, telling the class to run up to the hurdle, clear it, land, and move away from it along this line.

(7) As the bar continues to be raised, front- and rear-leg movements become so exaggerated that it is necessary to make a number of adjustments to the arms (which have been hitherto left to themselves). The arm opposite to the leading leg is now thrown forward and slightly down to a point in front of the corresponding

shoulder at take-off, while the other arm is kept well flexed with elbow in to the side (Fig. 27, c-e). As the legs change their position over the hurdle, so do the arms; the leading arm swings back, slightly flexed at the elbow and with the hand carried low and outside the rear knee (now coming through) (Fig. 27, e). The arm which was flexed is swung forward to co-ordinate its movement with that of the rear leg on the opposite side. The children should be encouraged to keep their hips and shoulders square to the line of running the whole time.

(8) In all hurdling, it is necessary to stress *driving across* an obstacle, and to do this some body-weight has to be brought forward and down slightly at the take-off. The class should be told that good hurdlers do not lift their heads any higher in clearance than when taking a normal running stride. A high-jump bar can be placed over the first obstacle at a height three inches above that of the tallest boy in the group, and the class can then be told to hurdle under the bar (Fig. 35). Tendency to throw the head face downward should be

corrected; only the chin should be thrust forward. The class adopts the position shown in Fig. 36 (a hurdling position on the floor) to stress this. The high-jump bar can then be slowly lowered to about the average standing height of the group.



FIGS 33 AND 34

(9) Whereas all previous progressions can, if necessary, be done in the gymnasium or hall, it is now necessary to work out of doors. The class is introduced to the regulation distance up to the first hurdle (which should be covered in *eight* strides) and the crouch start should be used. Distances between three hurdles should be somewhat under regulation for a time and

gradually increased to competition measurements. The height of the hurdles at this stage is left to the discretion of the teacher. The class may continue to work over canes or bars, or it may now attempt to clear proper hurdles. At this stage the teacher



FIGS. 35 AND 36

works for (a) a smooth, sprinting approach to the first hurdle, (b) a fast leading-leg and opposite arm action at take-off, (c) a drive across the obstacles, (d) a speedy return to ground of leading foot, (e) length of first stride on landing (aim at 4-ft. 6-in. to 5-ft. stride, depending upon class), (f) the use of the

PLATE II



arms between the hurdles and of a sprinting as against an overstriding action.

(10) A regulation run-in is then added to the three flights already attempted, and worsted is put into position for the rehearsal of a complete race in miniature; start, pick-up, clearance, striding between, rhythmical clearances and, finally, a fast finish and uninterrupted run-through the tape.

CHAPTER EIGHTEEN

LONG JUMPING

ALTHOUGH the general standard of long jumping has certainly improved in Britain over the past ten years, the performances of our best athletes lag well behind those of some other lands. Twenty-five feet is now a fairly common leap in international competition, and the world's record is nearly twenty-seven feet. This state of affairs is mainly due to the fact that few—if any—of our long jumpers have also been top-class sprinters; apart from that, the technique of some of our best performers has been well up to the standard of the best in other lands.

GENERAL REQUIREMENTS

Sprinting speed is without doubt the most important—though certainly not the only—quality required of a long jumper. The athlete is striving for distance, and without first-rate sprinting ability he cannot hope to get it. Spring is also a necessity, of course, for a performer must 'get up' to enable him to 'get out.' Yet this is of secondary importance to the sprinting speed. Finally, a jumper must have the co-ordination required to combine the two at take-off and to control his movements in flight.

Since the athlete is striving for the greatest possible distance between the board and the break in the sand, it is obvious that the landing position of Fig. 37, *e*, is to be preferred to one in which the feet land directly under the body.

His legs must reach well out at the end of the jump, yet he must be able to pitch forward over the fulcrum of the heels to 'save' the leap. The landing position of Fig. 37, *e*, is not easily

obtained, however, because long jumpers leave the take-off board with a strong forward rotation, tending to bring the trunk forward at the expense of getting the legs well out. It is therefore necessary to check—or at least retard—this turning movement in flight.



DIAGRAM 24.—
THE 'SAIL' POSITION



DIAGRAM 25.—
'HANGING' IN FLIGHT



DIAGRAM 26.—
A POOR LANDING POSITION

The very last thing to teach a boy to do is to ball up into 'sail' jumping position (Diag. 24), for this only speeds up the forward rotation. The body must certainly be extended, and in order to get such a position some jumpers 'hang' in flight (Diag. 25). The main objections to this style are (a) that the rotation is not destroyed but merely slowed down, and (b) immediately prior to landing the trunk reacts to the leg movements in such a fashion as to bring the athlete into a poor landing position (Diag. 26). To gain the greatest possible distance, *theoretically*, the trunk ought to lean back. Good jumpers will actually land with it leaning only very slightly forward (Fig. 37, e).

The best style to teach to boys is one in which the jumper 'runs in the air' (Fig. 37, a-e). We recommend this because (a) such movements can completely reverse forward rotation, (b) the legs can be brought into their landing position with a minimum of forward trunk lean, and (c) boys usually find it a very much more interesting form to learn than those mentioned previously.

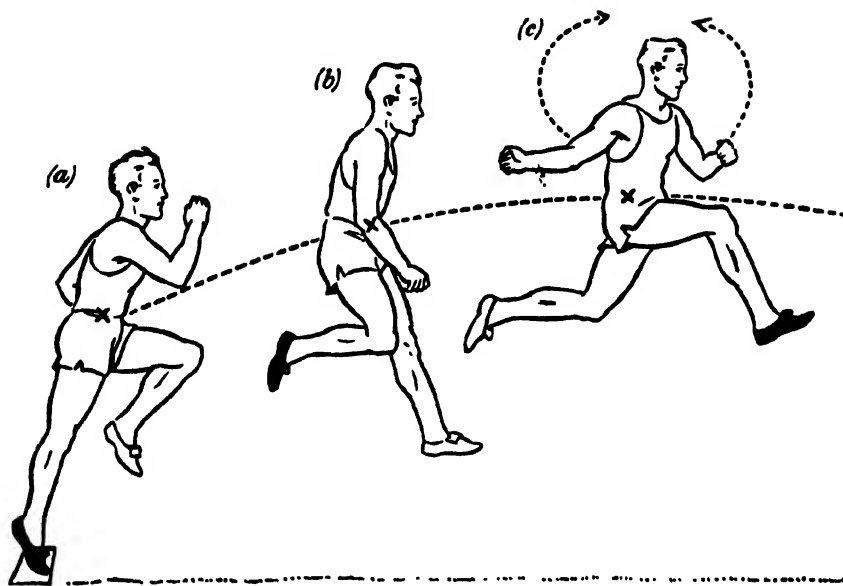


FIG. 37

THE RUN-UP AND TAKE-OFF

The stride plan of Diag. 27 is given as a guide to the correct method of approach to the board. The actual length of approach will depend upon the jumper's powers of controlled acceleration. Some champions—like Jesse Owens, Olympic Champion and world record holder—have used an approach of less than 100 ft.; others—Steele, the Olympic Champion of

—go back to about 150 ft. The important thing is to use no greater number of strides than are needed to attain one's best jumping speed, for the more strides one takes the more difficult it is to hit the board accurately. Some jumpers use approaches that are so long that they are fatigued before they reach the take-off board. We advise that the athlete starts his run, strikes check-marks and jumps from the same foot; the position of the final check-mark must be experimented with to suit individual requirements.

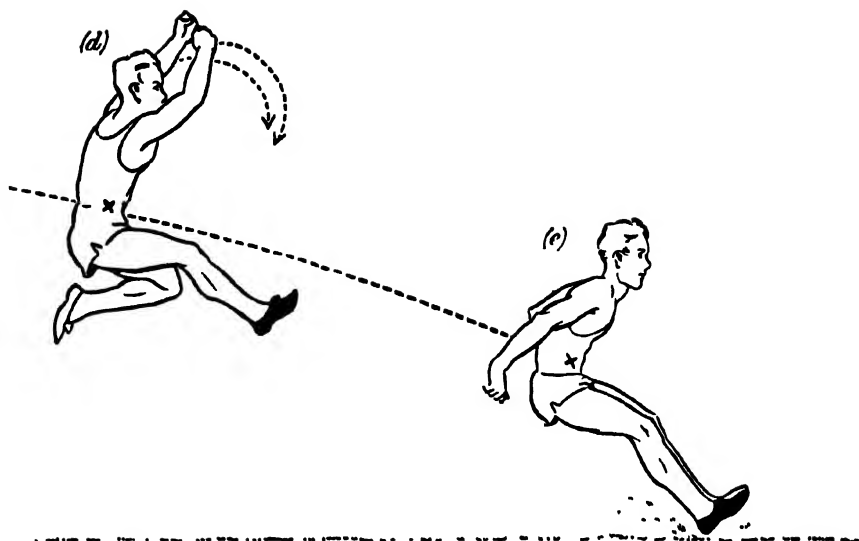


FIG 37

If the jumper strikes the board going at full speed, he will obviously not be able to leap very high in the air and will lose distance. If he slows down to get the height of a high jumper, he will also lose distance because he will lack the speed to carry him. One must strike a balance, and the best results are obtained when the jumper 'coasts' or eases *imperceptibly* over the first two of the last three strides of the run. In so doing he travels on what might be termed 'borrowed speed' and gathers for the leap off the board (Diag. 27).

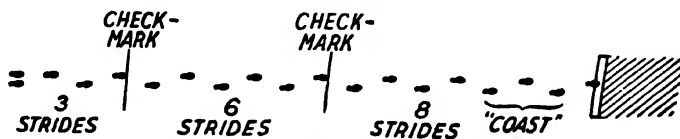


DIAGRAM 27.—STRIDE PLAN FOR LONG JUMP

The accuracy of striding should be such that the jumper hits the board with the toes of the take-off foot in line with its forward edge (Fig. 37, *a*). This foot strikes the board with much more of a flat-footed action than in high jumping, but actually the heel does strike the ground slightly before the rest of the foot. As the body-weight passes over the leg, hip, knee and ankle joints extend powerfully, aided by a strong counter-balancing arm action and thigh lift of the non-jumping (free) leg. The trunk is erect; the head kept in natural alignment with the shoulders.

THE FLIGHT

Now the athlete takes one complete stride in the air (Fig. 37, *a-c*), keeping the trunk erect throughout. After take-off, the jumping leg folds up and swings through while the free leg extends and sweeps down and back—just as in taking a running stride. The backward-leg action should be emphasised, for it is this movement that influences the trunk. The arms continue to counter-balance the leg movements.

By the time the jumper gets into the position shown in Fig. 37, *c*, he has already extended one leg in readiness for the landing. Now he has to bring the other up to join it without bringing his trunk forward in the process. If he merely brings his leg forward, the trunk will *have* to bend sharply down in reaction to the movement, and distance will be lost. He therefore uses his arms partly to balance this essential leg movement. From the counter-balancing position of Fig. 37, *c*, they quickly join each other above the head and, without a pause, swing downward and backward (Fig. 37, *d* and *e*).

It is important that these running-in-air movements are timed to be completed just as the athlete breaks the sand. If they finish well before, he will land in a position akin to that shown in Diag. 26. Quite obviously, the 'hitch-kick' (as it is often called) must also be complete. Some jumpers take two strides instead of one; a very few have taken three.

LEADING-UP STAGES FOR THE LONG JUMP (HITCH-KICK)

When beginners are at first introduced to a new co-ordination, it is advisable to go through it slowly—and probably in part—to give them the correct sequence of movement; then later these can be speeded up. In jumping, *height gives time*; horizontal movement has nothing to do with it. Therefore, in learning the co-ordinations of the hitch-kick the novice must be given more time, more height, in the air. This can be done either by giving the beginner a spring-board or beat-board, used at the end of a short, well co-ordinated run or, outdoors, by having him jump into a pit which is actually three or four feet below the take-off level. (The spring-board method may also be used out of doors, of course.)

The following progressions have been devised primarily for outdoor use, but those marked * may be used (perhaps with slight modification) as indoor activities. In this event beds and mats must be used for landings. In and out of doors the factor of height should be stressed throughout the progressions by having a football, handkerchief or some similar targets suspended over the pit approximately at the high point of the leap; the class then tries to touch this with the top of the head—and *not* the forehead. This is an easy matter to arrange in a gymnasium where beams can be used for this purpose, but out of doors one needs pole-vaulting or other uprights on either side of the pit with a cross-bar at about nine feet. *On no account should beginners be encouraged to jump over objects placed in the pit*; the height of the feet above the pit is not necessarily a criterion of height in the jump, i.e. the height of the centre of gravity is not necessarily improved when a bar or hurdle is placed in the pit to jump over.

(1) * (Sunken pit.) Approach with rhythmical five-paced run to leap off spring-board from one foot; landings on two feet, standing. (This practice is designed (a) to accustom the class to the use of the 'elevated take-off' or spring-board, and (b) to help each member determine his natural take-off leg.)



FIG. 38

free leg (well flexed at knee) lifted well in front of body. Trunk erect. (Fig. 39.)

(4) * (Sunken pit.) Five-paced approach and take-off, reversing leg positions in the air. The thigh of the jumping leg is brought up in front of body (the leg coming forward well



FIG. 39

(2) * (Sunken pit.) Five-paced approach and take-off with landing on other (free) foot. Trunk to be kept erect in this and every progression, while class attempt to touch suspended object with top of head. (The head must *not* be thrown backward.) (Fig. 38.)

(3) (Sunken pit.) As for progression (2), with beginners landing in exaggerated 'splits' position, i.e. with jumping leg trailing behind and with the

flexed), whilst free leg drops down and back. The landing is made on the free foot with take-off thigh held roughly parallel with ground. (Fig. 40.)

(5) (Sunken pit.) As for progression (4) above, with class landing in exaggerated 'splits' position in the pit (Fig. 41) (a reverse position to progression (3)). The trunk remains erect. (This

'cycling' movement may be practised hanging from a beam.) (Fig. 42.)

(6) * (Sunken pit.) The arm-lift off the board and the arm co-ordinations on the single stride (progression (5)) are then practised. The novice will now land in the pit with the arms in the reverse position to their disposition at take-off. (Fig. 41.)

(7) (Sunken pit.) The original free leg (at present trailing) is then brought through (well flexed) to join the outstretched jumping leg for the landing and the complete leg action. (Fig. 43.)

(8) * (Stride standing.) Class practise arm action for the landing. From the position of progression (6) the arms are swung above the body, extended, and then, together, swing forward



FIG. 40



FIG. 41



FIG. 42

and downward in counter-balance to the leg action; the swing finishes behind the trunk. Complete arm action, from take-off to landing, is shown in Figs. 44-48.)

(9) (Sunken pit.) The arm movements of progression (8) are now fitted in to the leg movements of progression (7). (Figs. 43 and 50.)

(10) (Ground-level pit.) Standing long jumps across, i.e. from the side. The arms are swung forward as the legs extend for the leap, and then swing down and back as the legs are picked up and ex-

tended in front of the body to gain distance. (Figs 49 and 50—in that order.)

(11) When the beginner has mastered these co-ordinations with the assistance of the extra time gained by using a spring-board or sunken pit, progression must be made gradually to a ground-level take-off; this will obviously necessitate a speeding up of all co-ordinations, as the jumpers will not obtain the same degree of height with each attempt.

(12) (Ground-level pit.) The length of the approach run is then gradually increased, two strides at a



FIG. 43



FIG 44



FIG 45



FIG 46



FIG 47



FIG. 48

time—so that always an odd number of strides is taken in the approach. This will permit the jumper to commence the run and strike any check-marks with the jumping foot (Diag. 27). During this progression—or series of progressions, lasting over a period of weeks—the two- or three-stride ‘coast’ to the take-off is introduced.

The order of these progressions may be changed so that the



FIG. 49

FIG. 50

beginner first masters all the leg movements before introducing the counter-balancing arm actions.

The hitch-kick is one of the most difficult of athletic movements to execute correctly, and it is suitable as a class activity for only the sixteen-year-old and above. Although some boys very much younger have mastered the movements, they have been exceptional.

CHAPTER NINETEEN

HIGH JUMPING

ALTHOUGH the high-jumping standard of Britain's best athletes has improved to the extent that we now have a number of excellent performers, the general standard in our schools remains poor. For only too often we see schoolboy and school-girl athletes winning at mediocre heights and with out-dated styles.

There is no place here for a detailed explanation of the rules of the event, but we would point out that a high jumper is now permitted to cross the bar in any position he chooses; e.g. head or feet first, providing he jumps only from one foot. This change in the jumping rule permits the modern jumper certain liberties of movement in the air which were denied his predecessors.

The general mechanical principles of high jumping are perhaps best illustrated by fig. 51, *a-g*.

(*a*) A jumper stands erect on the ground. The cross marks the approximate position of his centre of gravity in this position.

(*b*) By applying a certain quantity of spring this centre of gravity is lifted to a certain height—the height to which it is also raised in (*c*), (*d*), (*e*), (*f*) and (*g*). As a result of maintaining his erect position, the jumper can clear only a very low height.

(*c*) With this jump the legs are brought into a horizontal position, thus making room for a higher bar. But the trunk remains erect and the centre of gravity must be lifted about eighteen inches above the bar.

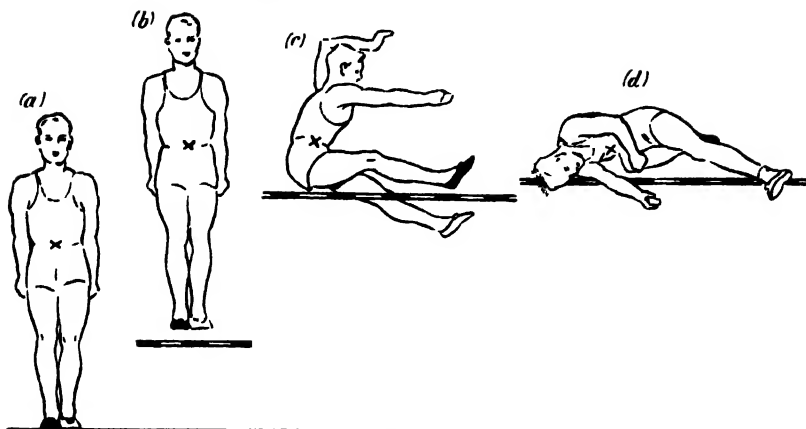


FIG. 51

(d) At the high point of this jump, the athlete lies on his side, so that the bar can be raised nearer to the centre of gravity.

(e) This face-downward position is even better; a lay-out on the back would produce the same mechanical effect.

(f) and (g) The jumpers here have so disposed their weight about the centre of gravity that those parts of the body crossing, or about to cross, the bar are elevated. They 'pour' themselves over and down.

It will be appreciated, therefore, that the flight-curve of a jumper's centre of gravity will not change once he leaves the ground, but that he can and should change the position of his body about that point to gain greater height. Of the positions shown in Fig. 51, (b) is the gymnastic upward jump, (c) the outworn and, at greater heights, dangerous Scissor jump, (d) a Western Roll, (e) a Straddle, (f) another—and better—Straddle style and (g) a *theoretically ideal* Eastern Cut-off.

The upward jump of the gymnasium may be ignored on the grounds of mechanical inefficiency; so may the Scissor jump—which, as we have said, can also be dangerous. Only boys and girls of exceptional neuro-muscular ability can

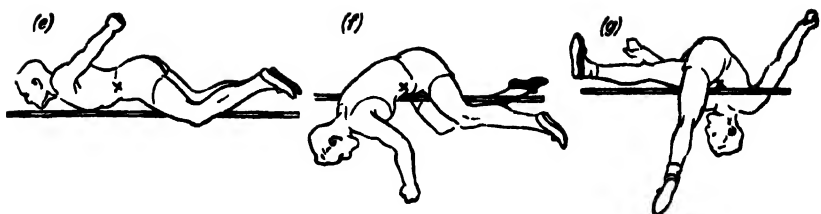


FIG. 51

execute the Cut-off style correctly. The straddle style is very economical and with good teaching will produce the best results. The difficulty is that children tend to go into the turn too soon and so put insufficient power into the upward spring. For the skilful performer therefore we suggest the Straddle, while still recommending the Western-Roll for general use. It is based on sound mechanical principles and some first-class jumpers continue to use it. It can also be an introduction to the Straddle.

The jumper of Fig. 52 is using a 60-degree angle of approach. The length of the run and the position of check-marks are so arranged that he begins his run, strikes the mark or marks and jumps from the same foot. The athlete will find it easier to strike the correct take-off spot if the strides of the approach are kept down to a minimum. The running approach should be taken easily, but with a marked acceleration over the last three strides.

In all good high jumping the last stride is longer than the others and the jumping foot strikes the ground with a pronounced heeling action (Diag. 28). The body-weight is well back and the jumping leg is only slightly flexed at the knee at



FIG 52

this moment. The backward lean must be obtained by reaching forward with the jumping leg and *not* by consciously leaning the trunk backwards. The jump is made from the foot nearer the bar. As the body moves forward over the jumping leg, the knee 'gives' a little and the non-jumping leg swings powerfully from behind to a point along the direction of the run and above and beyond the bar (Diag. 29).

The final swinging movement of the free leg coincides with the completion of the extension of the hip of the jumping leg and an extension of the corresponding knee and ankle joints. The arms and certain trunk muscles also help to lift the jumper off the ground.

Sometimes, despite their having a good rolling action over the bar, boys cannot clear heights with this style which they have managed fairly easily with the Scissor jump. In a majority of cases *this is because the boys are anticipating the rolling movements*; they are turning on the ground, thus destroying the leverage that is essential to the spring which must always precede the roll. The teacher should stress that the turn takes place *in the air*, and that it is of little advantage to obtain a complete lay-out over the bar if the jumper has failed to make full use of his natural spring off the ground; therefore at the moment of take-off body-weight should be over the jumping leg.

Once he has left the ground the jumper reaches up and across the bar with his arms (Figs. 53, *b* and 54). The inside arm in particular draws the top part of the trunk towards the



[Action Photos

Y. Stepanov (U.S.S.R.) jumping at the height of 6 ft 8 ins. at the White City

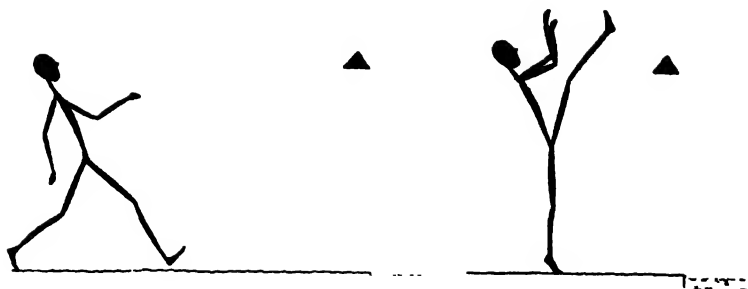


DIAGRAM 28 — THE HIGH-JUMP
TAKE-OFF (1)

DIAGRAM 29 — THE HIGH-JUMP
TAKE-OFF (2)

bar and into a lay-out position. The head is also thrown across the bar at this early stage, and the jumping leg folds up with its thigh close to the chest (Figs. 55 and 53 *c*). The free leg continues to cross the bar at an angle. These movements bring the jumper into what might be described as a 'jack-knife' position, where the trunk and legs are folded up closely.

The hips have yet to cross the bar, however, and it is these that give most trouble in a roll style of jump. While some men prefer to straighten the body in an attempt to pull the hips quickly across, here we recommend that the athlete drops the arms, head and shoulders sharply towards the pit—thus lifting or pivoting the hips high in the air (Fig. 53, *d*).

The landing is then made on two arms and the jumping leg (Fig. 53, *e*). We consider this 'three-point' landing to be much safer than that used by many Scissor jumpers at the greater heights. In scissoring, there is a tendency to lie back in clearance so that to save his fall the athlete puts out an arm behind him, and to our knowledge many wrists and arms have been broken in this way. In jumping over a very low bar or rope, it is permissible to use gymnasium mats, but at all other times boys should be given a well-dug pit to jump into, regardless of the jumping style used.

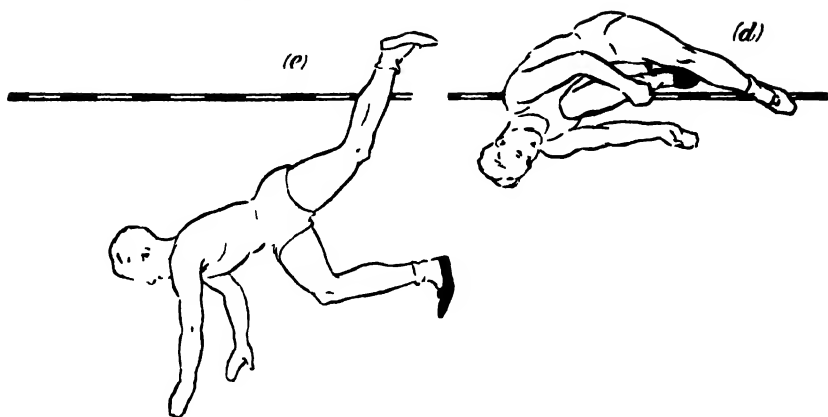


FIG. 53 (Note : read from right to left)

PROGRESSIVE STAGES IN TEACHING THE WESTERN ROLL

Stages

(1) All general jumping progressions as given in 1933 Syllabus.

(2) (Low bar or rope.) Free jumping to determine the best take-off foot.

(3) Free practice (without rope) to obtain a rhythmical three steps before the leap.

(4) (Bar or rope at twelve inches.) Three-stride approach directly from front to hop over the bar. (Fig. 56.)

(5) (Bar or rope raised slightly.) As above, stressing the reflex action of the jumping leg. Pupils should be encouraged to strike the chest with the thigh of this leg before dropping the take-off foot towards the pit or mat for landing. (Fig. 57.)

(6) As for (5) above, with a 90-degree turn in the air on a given signal (e.g. a hand-clap). Left-footed jumpers should turn to the left and vice versa. (Fig. 58.)

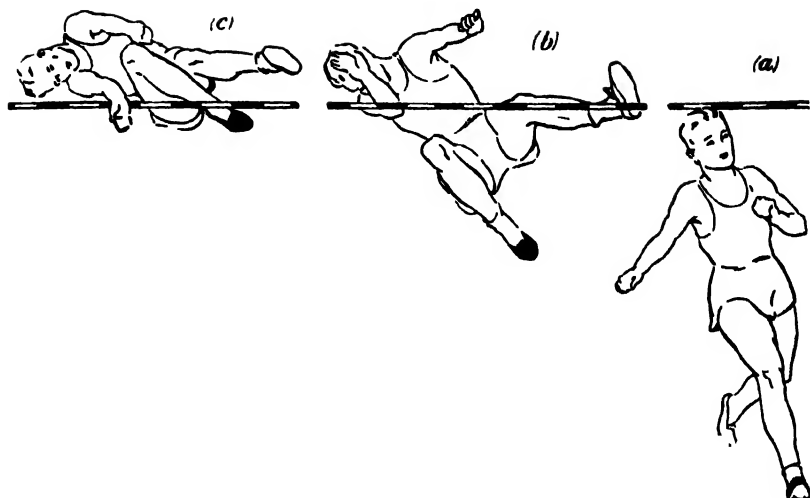


FIG 53

(7) (a) As for (6) above, with a handkerchief placed to the left or right in the pit. Pupils now make three-point landing on two hands (reaching for handkerchief) and one foot. (Fig. 59.)

(b) Standing high jumping with roll over bar.

(8) Class practises posing on the floor, grass or on a gym. box in the clearance position lying on the side. (This exercise should be interspersed frequently with all the following progressions.) (Fig. 60.)

(9) Free practice (without bar or rope). Pupils stand on the jumping leg, swinging the free leg backward and forward from the hip. At high point of forward swing turn completely round (to the left for left-footed jumper, and vice versa) to touch ground or floor behind with two hands.

(10) As for (9), with a one-pace approach. The turn must be obtained in the air.

(11) As for (9), with three rhythmical strides before the jump.

(12) (Low bar or rope.) The three-stride jump-and-turn



FIG. 54

FIG. 55

exercise of (11) above over the obstacle and on to a mat or into a pit *from a 45-degree angle of approach.*

(13) (Slightly higher bar or rope.) As for (12) above, stressing the heeling action on the last stride and the wide arc

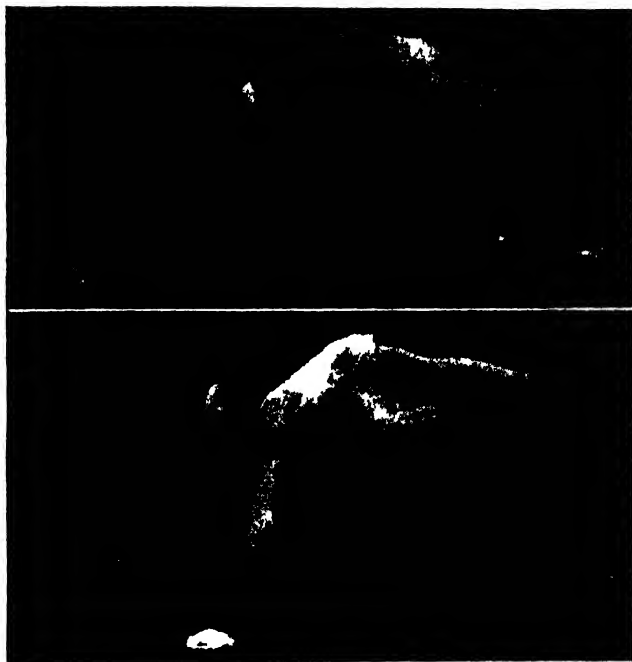


FIG. 56

FIG. 57

of the free-leg swing at take-off. (Fig. 53, *a*, and Diags. 28 and 29.)

(14) A stick is placed in the far corner of the pit. The teacher (or another pupil) stands behind it, facing the jumper



FIGS. 58 AND 59

to ascertain whether or not the turn is being anticipated at the take-off and whether the jumper is leaning into the bar. (Fig. 61.)

(15) Jumping (still from three strides), stressing relaxation in the air and the jack-knifing of the trunk and legs in the clearance. (Figs. 53, *c*, 54 and 55.)

(16) As proficiency increases, the bar or rope should be raised from stages (3) to (14). Now a five-stride approach is



FIG. 60



FIG. 61

attempted, with a concentration on a slight increase in the tempo of the last three strides.

(17) As for (15), progressing to a seven-stride approach. (In the approach, the jumper should start the run, strike any check-marks and leap from the same foot.)

CHAPTER TWENTY

POLE VAULTING

THERE is no event in track and field athletics more spectacular than pole vaulting, and at the same time there is no technique more complex and difficult to master. The process of developing a really good vaulter—i.e. one in the 14-ft. class—is a highly specialised one having no place in a programme of physical education for schools, but this should not be taken to mean that the event can be left out of the school's curriculum. On the contrary, boys *should* be taught how to carry, run with, plant and 'ride' a pole. These are fundamental movements that need be given no more than their fair share of time in the programme of physical education and yet, by their mastery, boys may well clear 10, 11 or even 12 ft. The later progressions and refinements concerned with teaching a vaulter to clear a bar some two to three feet above his grasp must be left, however, until after a boy has left school, for it is these that require the specialised training to which reference has already been made.

It is surely difficult to reconcile the reluctance and timidity of many school authorities to the teaching of an event which boys enjoy so much with the attitude of those authorities towards the playing of strenuous body-contact games and other activities at least as dangerous, if not more so. Indeed, there can be very little danger to any boy who is vaulting under supervision with a metal pole into a pit no less than 14 ft. square, filled with well-dug sand to a minimum depth of two feet. Moreover, though this is not stressed, of course, as a primary reason for the introduction of the event, we may be

sure that our national vaulting standards in adult competition will continue to show slow improvement until more schools make a point of interesting children in an event which enjoys world-wide popularity and which originated in this country.

As we write, the world's pole-vault record stands at 15 ft. 8½ in. The holder is R. Gutowski of the U.S.A. who follows the



FIG. 62

American tradition of success in this event. This tradition is built on the foundations of good high school teaching and competition. We would do well to learn from this example.

A few athletes have been over or very close to the 15-ft. mark, and the general standard of vaulting throughout the world is improving to such an extent that we feel sure that 16 ft. will be bettered in a comparatively short time. To date 14 ft. 1½ in. is the best height cleared by an athlete from Great Britain. This height has been achieved by G. Elliott who, in common with many vaulters, has also shown great all-round ability and is also the best decathlon competitor ever produced by this country.

As has already been said, the technique of pole vaulting is perhaps the most complex in all track and field athletics. It

is beyond the scope of this book to give detailed accounts of athletic technique, however, and therefore we shall confine our remarks to the fundamental principles of the event.

POLE-VAULT TECHNIQUE

The pole is carried in such a manner as to permit the athlete to run as naturally as possible and to plant it (to put it in the

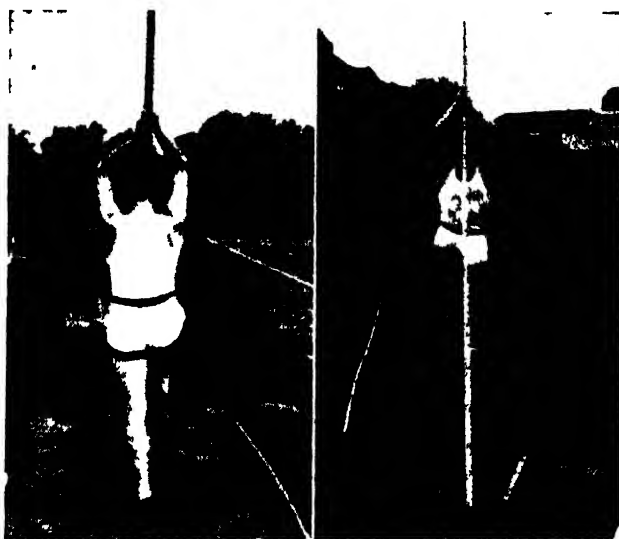


FIG. 63

FIG. 64

box) in the most effective way at the end of the approach. The position of the grip of the rear hand will depend upon the energy built up in the approach and the athlete's vaulting technique. If a fast approach is combined with a very low grip, then the pole rises so rapidly that the vaulter has no time to get into position for bar clearance. Conversely, if a very high grasp is used with an approach that is too slow, the pole fails to reach a vertical position, and thus the athlete loses its essential support.

The world's best performers use fast approaches and high grips. When the pole is in a vertical position the rear hand (by this time the top hand) is anything between twelve and thirteen feet six inches above the ground. This means that an athlete who uses a 12-ft. 6-in. grip will actually be holding 13 ft. 2 in. from the planting end of the pole (allowing for the 8-in. depth of the vaulting-box). We must stress, however, that beginners should be given short, well-controlled approaches, with hand-holds which balance the available momentum. As proficiency increases, the length and speed of the run can be increased, together with an improvement in the height of the grip, but such changes should never be made at the expense of control.

There are actually several methods of pole planting in vogue in modern pole vaulting. All bring the vaulter into the position shown in Figs. 62, 63 and 64, with control and without loss to the energy built up in the approach. The same general principle applies to them all; i.e. the rear hand grasps the pole on the last two or three strides of the run and moves in a forward-upward direction in front of the body. The other hand, which appears to shift back to meet it, merely permits the pole to move forward until the hands meet. Whereas some techniques stress, firstly, an under-swinging in the plant, others call for an over-arm motion. In the recommended technique of planting, the forward and upward movements of the pole are combined. With a well-timed plant the end of the pole will strike the back of the box a split fraction of a second before the take-off foot comes to ground.

The plant and take-off phases of pole vaulting are tremendously important, as seventy per cent. of the mistakes made in vaulting can be traced to these movements. A common error is for a vaulter to take off too far in front of his hands, so that he is snatched off the ground by the pole before he has had time to complete the take-off movements. When this happens, the athlete swings too quickly past his pole and loses control from there onwards. Another common fault is for the vaulter to

step to the side of the pole in take-off (to the right if he is to swing around that side of it, and vice versa) instead of taking off *directly into the pole*.

There are many other mistakes—too numerous to mention here—but fundamentally they all have the same effect, namely to deprive the pole-lever of much of the energy needed to bring it to a vertical position. The athlete fails to 'ride' his pole—as pole-vaulting parlance describes it. In teaching the event in school, the main problem will

be to get the boys to *use* the pole instead of jumping up past it to get over the bar without its essential help.

It is a well-known principle that for a given amount of energy a short lever is a fast one and a long lever is slow. The pole vaulter makes use of this directly he leaves the ground by extending his body and legs immediately after the take-off. He actually 'trails' the jumping leg and allows the free leg to drop back slightly (Fig. 65). This movement lengthens—and therefore slows down—the body-lever, and at the same time it serves to add to the pole's speed. This 'hanging' phase of vaulting is of special importance when a high grasp is being used, because then it is difficult to remain behind the pole for a sufficient length of time during the initial stages of the vault, and unless body-weight is kept low immediately on leaving the ground the high grip is never brought to a vertical position. Note, however, that the arms are never fully extended; for by keeping them flexed at the elbows, the vaulter controls his movements during the swing-up and, later, can pull powerfully



FIG 65

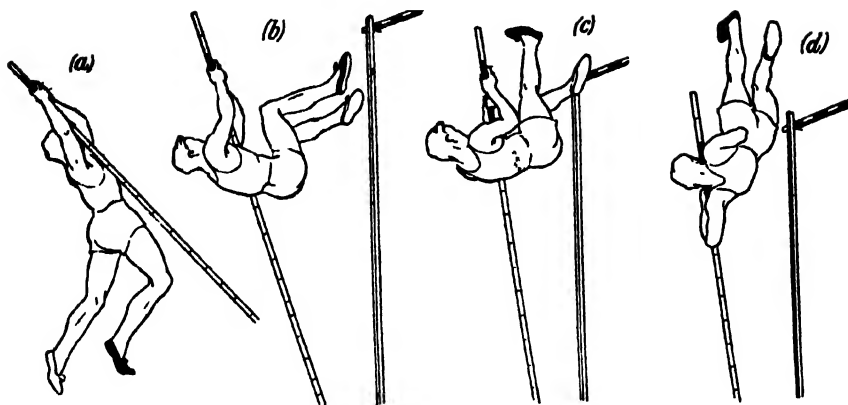


FIG. 66

After the vaulter has swung to the point where his chest comes in contact with the pole (Fig. 66, *a*), the trunk swing is temporarily checked and the legs, moving from the hips, go quickly ahead of the body. In this swing the hips and shoulders are square to the front and the body does not yet turn (Figs. 66, *b*, and 67). The check to the trunk movement is only momentary, however, so that eventually the vaulter gets into the position where he has as much weight behind as ahead of the pole (Figs. 66, *b*, and 67). At this point the legs should be flexed and the thighs dropped back towards the trunk, while the feet should be well above the knees.

Now, with the hips and legs continuing their forward and upward swing, the athlete pulls (Fig. 66, *c*, and *d*). At the same time he kicks his outside leg (the non-jumping leg) up and slightly across, to assist the pulling movement and to aid in the turning of the body. Later, the other leg will kick back in an opposite direction to complete the turn. This has been termed a 'scissor kick'. If the pull-up is timed to take place when the athlete's centre of weight has swung in line with the pole, the movement will elevate the whole of his body. Should

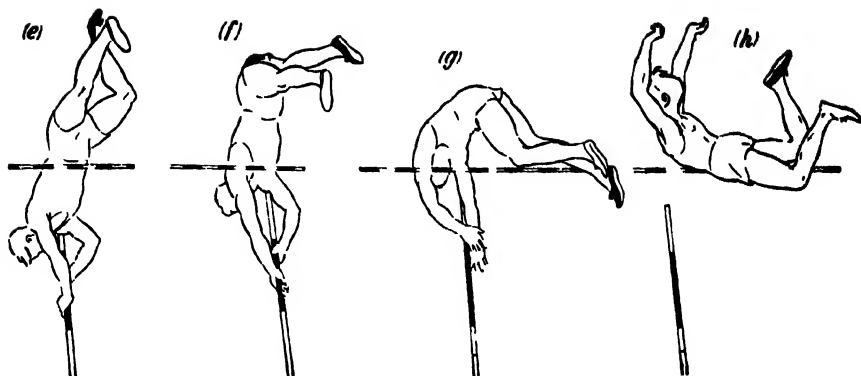


FIG. 66

it be delayed until the body swings well past the pole, any advance in weight will be made at the expense of pole speed and, moreover, the pull-up will no longer lift the whole of the body. Therefore, with a correctly executed pull-up and leg kick, the body rotates on a *nearly vertical axis* (Fig. 66, *d* and *e*). If the body is permitted to swing well past the pole before the pull-up takes place, the legs and trunk merely rotate on a horizontal axis, and height and pole movement suffer.

The pull-up flows into the push-up; for in effect these movements are one and the same. The vaulter keeps close to the pole throughout. Now, the trunk is in a nearly vertical hand-standing position with the pole well into the neck and the weight well over the arms and hands. The original free leg drops back to add to the effect of this 'weight over hands' position and the take-off leg moves across the bar, still gaining height (Fig. 66, *e*). As the final thrusting movements are made the legs begin to drop (Fig. 66, *f* and *g*), but the better the vault the greater will be the tendency for the legs to maintain height throughout. In a good vault the bar will be cleared with the body slightly arched. The pole has now reached a vertical



FIG 67

position, and the final thrusting movements are directed down its length and into the box below.

In good vaulting, the athlete will have converted his earlier horizontal movement to vertical lift to such good effect that he will be vaulting about two and a half feet above

his grasp and the bar will be crossed with very little horizontal travel. (It varies between three and six feet per second with the world's best athletes.) He must therefore learn to pivot around the bar, carefully controlling his leg, trunk and arm actions so as to avoid it. The beginner crosses his lower heights with so much horizontal motion that he has no time for these finer details of technique; and therefore they can be attempted only when the earlier phases of vaulting have been mastered successfully.

The lower hand leaves the pole slightly in advance of the upper one (for the upper arm has still to straighten). In an effort to clear the arms, head and chest, the athlete then assumes a position in which the legs fold up behind and the back is hollowed (action and reaction) (Fig. 66, *h*). Some men make the hand release movements more distinctive than others, so that while some vaulters land facing the way they came, others make a quarter, or even a complete, turn in dropping towards the pit. In a good vault the emphasis on the *downward* thrust will have been so great that the pole will hover slightly before falling back in the direction of the runway, thus permitting the athlete to land well before the pole.

PROGRESSIONS IN POLE VAULTING

The following progressive stages are suggested for inclusion in the programme of athletics training in schools.

1. Getting Off the Ground

It is possible to give every member of a class the sensation of vaulting and the thrill of getting off the ground, with safety, in



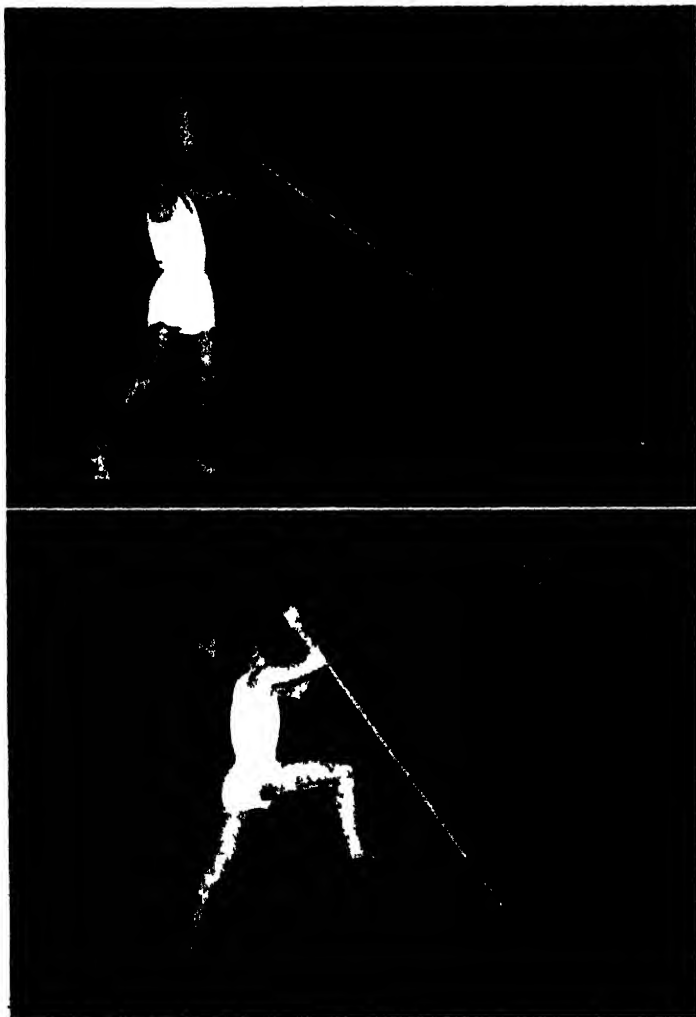
FIG 68



FIG. 69

one lesson. This should be taken before the boys are shown how to handle a pole. It is necessary from the very beginning to show boys that they can trust themselves to the pole and so develop their confidence.

(a) The pole is placed into the box in an upright position and the beginner reaches up to stretch height to grasp it. The



FIGS. 70 AND 71

hands must be together. Right-handed boys must stand slightly to the right of the pole, with the right hand on top; left-handed boys vice versa. The beginner then springs up to the right of the pole, and towards the pit, taking the pole with him and pulling just after leaving the ground (Figs. 68 and 69).

(b) A mark is now made on the pole about one foot above stretch height and the boys grasp the poles over their heads at this mark (Fig. 70). Right-handed vaulters stand with the right hand on top and when they leave the ground will take off the left foot and swing to the right of the pole. They now stand about five yards away from the side of the pit. Then taking a few running strides stick the end of the pole in the sand, take off and swing round the pole (Fig. 71).

(c) This procedure is repeated, stressing easy strides to the take-off (which should be in line with the run and the plant of the pole in the pit) and a slight pick up with the knees after take-off.

(d) When some degree of confidence and smoothness has been developed, arrange a five-stride approach. This can be done by getting the boys to run back evenly from the take-off spot (starting to run by moving the take-off foot forward first) and noting the position of the fifth step. Repeat the practice in (b) with a smooth, fast, five-stride approach.

(e) Measure the distance between the start of the run and the plant in the pit and mark out an approach run up to the vaulting box. Take a number of runs, paying attention to smoothness, speed and correct take-off position. Then erect the uprights and a bar so that the bar is over the pit about three feet from the box and about four feet high. The height of the bar can be increased as ability increases. At this stage the correct method of running with the pole and pole planting should be taught (see pp. 207 and 209).

(f) The run can gradually be increased from five strides to seven strides and, for proficient boys to nine or even eleven strides. The boys will now begin to get the feel of 'riding the

pole' and the satisfaction of clearing a bar 6 ft. or 7 ft. high. During this phase the teacher should pay particular attention to:

- (1) A well-modulated, controlled approach.
- (2) Take-off in line with pole and box, directly under hands.
- (3) Hands together.
- (4) Smooth transition from run to vault *with not too much emphasis on leap*.
- (5) Brief 'riding', quickly followed by knee pick-up and then the pull.

This progression takes the run back as far as ever it need go during a boy's vaulting at school. This is a point to be emphasised, otherwise the class will quickly increase the length and speed of the run, and use a higher grasp to clear greater heights rather than learn to master proper vaulting technique.

All the above progressions may be included in gymnastic work, provided there is a suitable box or support for the base of the pole, and of course beds and mats for landing, but they are obviously more suited for out-of-doors work. These activities can produce something of a 'bottle-neck', however, in that only one boy can vault at a time. The remedy is either to have more than one pit and pole, or to employ only part of a class or group in the activity. The latter method will be the one most usually followed.

2. The Carry

(Instructions given are for right-handed vaulters—which are merely reversed by those who are left-handed.)

As it is unlikely that a teacher will have sufficient vaulting-poles for each member of a class, it is suggested that broom handles, javelins, sticks, etc., be substituted in those lessons where it is intended to deal with carrying and running with the pole.

(a) The starting position is assumed in the following manner. Each boy stands in an erect position, facing the line of approach. The planting end of the pole rests on the ground before him,

and that part of it just above the hand-hold is supported by the right shoulder. Both hands are together and rest lightly on the pole with an overgrasp. The top of the right hand is at a point approximately one foot above the stretch height of the boy using it (Fig. 72).

(b) The class now adopts the 'carry' position (Fig. 73). The right hand momentarily grips the pole to lift its planting end to about head height directly in front of the body, and to lower the grasping end to just below hip height on the right side of the body. The left hand slides forward to a point about shoulder-width in front of the rear hand. The following points must be noted:

(1) The body remains erect and facing squarely to front; feet together, hips and shoulders level, head in natural alignment with the shoulders.

(2) Both arms are flexed at the elbows. The rear elbow is pressed to the right to keep the corresponding shoulder level with the left. The left forearm is clear of the body, with the wrist down.

(3) Neither hand grips the pole now, which rests on the fulcrum made by the thumb of the front hand, the fingers of which rest lightly over it. The 'fork' made by the forefinger and thumb of the rear hand presses down to counter-balance the pole-weight in front of the body (Fig. 74).

(4) The line of the pole may be permitted to swing slightly across the centre line of the body; its point should be no farther to the left than opposite the left shoulder.

3. The Run

This progression is best carried out on a field or track. The class works in pairs, one boy at either end of the runway; one being 'master' and the other one 'pupil'. Running with the pole at a moderate pace will be found easier than holding a stationary 'carry' position for any length of time. In running, boys should be encouraged to use a controlled acceleration



FIG. 72

(Fig. 75). The end of the pole should remain at about head height (*not* pitched high in front of the body), and shoulders and hips should remain loose and square to the line of running. The pole should be permitted to swing only slightly backward and forward on counter-balance to the leg action below. Excessive 'pumping' to and fro is to be deprecated. Throughout the run the rear hand must always be closer to the right hip than the front hand, whilst the front

forearm must be kept clear of the body, with the left wrist down. At the conclusion of each run the boys should be taught to ease up gradually before handing their poles or sticks over to the others.

4. Pole Planting

In the earlier phase of 'getting off the ground' the boys held the pole above their heads and ran down with the pole in that

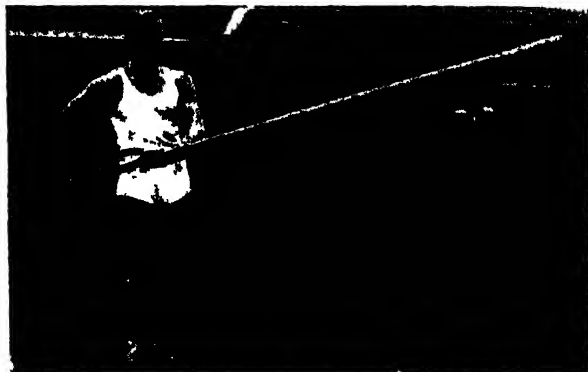


FIG. 73

position. This avoids the complication of the 'plant' for the beginner. However, having learnt to run with the pole they must now be able to get the pole and themselves into the take-off without interruption to the speed and general co-ordination of the run. This is undoubtedly one of the most important things to be learned in pole vaulting. There are a number of different 'plants', as this movement is termed, but we have selected one which we consider effective yet easy for boys to learn. The following are the sub-stages:

(a) The teacher demonstrates the 'take-off' position (Figs. 62, 63 and 64). This is posed, but is actually a position through which the boys will pass, momentarily, in the complete vault. The demonstration should bring out the following important points:

(1) The pole rests in the back of the box and is at right angles to the plane of the uprights. Its angle depends upon the height of the hand-hold being used.

(2) The hands are together and there should be a slight flexion in the right arm (Figs. 63 and 64). (Obviously, the other arm will flex a little more, the hand being lower.)

(3) The head remains in natural alignment with the shoulders, and these—together with the hips—remain square to the front.

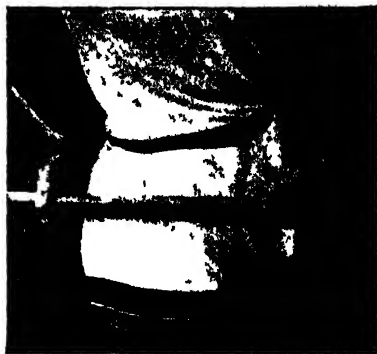
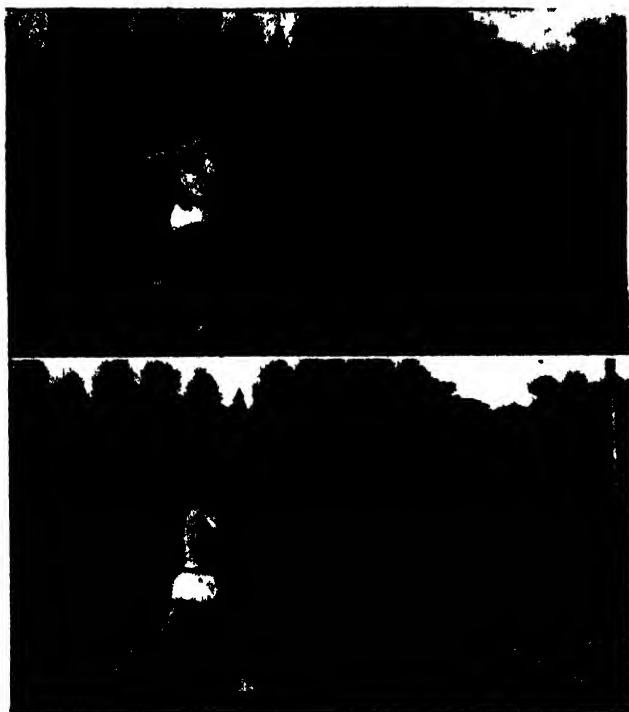


FIG. 74



FIG. 75



FIGS 76 AND 77

(4) The right thigh is picked up to a position parallel with the ground and flexed at the knee to about a right angle. The body-weight is supported by the left foot, pitched well up on the ball. The toes point into the box.

(5) A plumb-line dropped from the top of the right hand would brush the back of the head, shoulders, seat and *toes* of the left foot.

The class again works in pairs; one boy adopts this position and the other corrects. Pole ends can be placed against a kerbing or wall (in which event the hand-hold should move down eight inches, i.e. the depth of a vaulting-box). The teacher must ensure that hand-holds are known and main-

tained, since alteration of this affects the take-off position, bringing it either farther in or farther away from the box.

(b) The 'take-off' positions are again adopted, but the 'master' now marks the spot toed by the take-off foot of his pupil. After taking one comfortable walking pace, the boy then assumes the take-off position. In one stride the left foot hits the mark made on the ground, the hands meet above the head (the left hand slips back to meet the right) and the



FIG. 78



FIG. 79

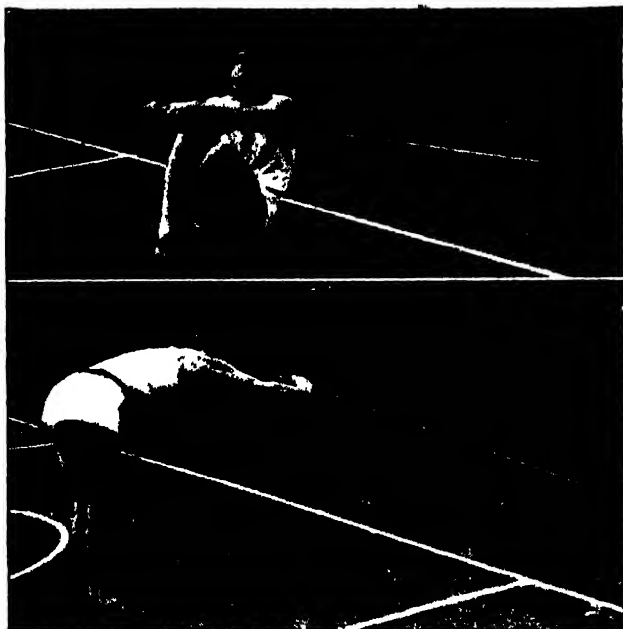


FIG. 80

pole strikes the back of the box (or the kerbing or wall serving as such). The pole strikes the back of the box a split fraction of a second before the other movements are completed. Throughout this movement the rear arm remains slightly flexed, and it moves forward and upward with an 'upper-cutting' motion. At the completion the shoulders are set low (and not drawn out and up); the hands are over the head and the pole is directly in front of the chest.

(c) The foregoing movements are then practised from two strides and then from three, when the boys should start from a correct 'carry' position, i.e. with the pole-point clear of the ground. The pole is lowered on the first of these three strides and the planting movements take place over the last two (Figs. 76, 77 and 62, in that order).

(d) This is then practised from five paces on the run, and the box and pit are now used. Take-off positions are checked, marks made, and then, turning about and toeing these marks, the learner runs easily away from the pit for about fifteen yards.



FIGS. 81 AND 82

The position of the fifth stride is noted and marked by the teacher or a class member. (*Note.*—The boys must run naturally at this point, as exaggerated striding, or a slowing down as the fifth stride is made, will not facilitate an easy approach in an opposite direction.)

(e) The performer then tries a five-paced run and plant, running from the marks already made—while the pole, planted in front of the body, is left in the box, the boy running slightly to the right and past it into the pit.

(f) Finally the vaulter leaves the ground at the end of his five-paced run, and the swing is added to the planting movements. The teacher should work for a smooth, easy approach and a correctly timed plant.

5. Riding the Pole

(a) The run can now be increased to seven paces (the maximum recommended for schoolboys), and the grasp put up slightly to balance the increase in the approach momentum, but the approach should remain well modulated and controlled. This change will necessitate some readjustment to the timing of the plant and swing-up. Greater emphasis must now be placed upon the 'hang' (progression 1 (f)), and as this is improved an increase in the height of the hand-hold will be found to be necessary. After take-off, the free or non-jumping leg should be dropped back a little. The eyes should be directed towards the top of the pole, and the vaulter must be content to remain inert for a fraction of a second before the knees and legs gain elevation. Throughout this movement they must stay behind—i.e. 'ride'—the pole to give it the benefit of the approach momentum.

(b) When the teacher is satisfied with the progress of his pupils in the previous progression—and *all boys can do with a great deal of 'form' work without a bar*—the uprights should be placed about two and a half feet behind the back of the box and a bar set at a convenient height. The class continues to work for correctness of take-off and the long swing, but at this stage rather more consideration should be given to foot and knee elevation. A pull finishes off the vault.

6. The Pull-up and Scissor-kick

(a) Sitting on the ground or gym. floor, with knees well tucked up, the boys roll back on to their shoulders and 'scissor-kick' at the end of it, i.e. they kick the right leg up and to the left while the left leg folds underneath and to the right. This



FIG 83

movement will partially turn the hips and trunk to the left (for a right-handed vaulter). There should be no pause between the two movements (Figs. 78, 79 and 80).

(b) The pupils assume the position shown in Fig. 81, grasping the pole at their proper hand-hold and with legs crossed. From such a position they then pull themselves into the position shown in Fig. 82. Note that the pole is kept close to the body throughout (beginning under the left arm-pit, keeping close to the chest mid-way between pull and push, and finishing against the right side of the neck). From starting to finishing positions the movement is fast and continuous.



FIG. 84

(c) The 'master' holds the pole into the ground and in a vertical position. The 'pupil' sits beside it with ankles crossed and reaches to the fullest extent



FIG 85



FIG 86

of the right arm to grasp the pole with hands together. From this position he pulls and turns himself above his hands in one fast and continuous motion. As strength and co-ordination improve, the feet can be supported on a box (Figs. 83, 84), which enables a boy to get higher above his hands at the end of the movement, and therefore brings him into a position that approximates to the correct position at the crest of a good vault. Figs. 85 and 86 show another but more advanced way of performing this type of exercise.

(d) The Scissor-kick and pull-up movements are attempted in vaulting.

Rope climbing and exercises on ropes are of considerable value to a beginner. Pole Vaulting can of course only be learnt on a pole, but the sensation of flying through the air upside down and the feeling of hanging the whole weight of the body on the hands can be developed on ropes. In the early stages too the use of ash sticks with rubber ferrules on one end can be very helpful to boys up to the age of twelve to thirteen years.

Exercises of special value to the pole-vaulter are shown in Figs. 87 (standing and walking on hands), 88 and 89 (push-ups with a high front support); Fig. 90 (handsprings) and Fig. 91 (front somersaults into the pit).



FIG 87

In conclusion we would stress that throughout a vaulter's career there is something of a race between the bar he is clearing and the height of his grasp, i.e. the height of the top hand above the level of the ground. In the early stages he will hold well above the level of the bar, and his grip will go higher as he learns to ride the pole correctly. But the bar moves faster than the grip, so that at about eleven feet a boy will grasp his pole at about the same height. After that, and with the grip still rising, the bar moves above the hand-hold.

Champions have vaulted as much as two and a half feet above their grasp, and at least one vaulter has obtained over a yard of elevation.

Many refinements and details of vaulting important to the mature performer have purposely been omitted. It will probably be noticed, for example, that many of the movements of bar clearance are not mentioned here. Mastery of such technique demands a specialised training undesirable in school athletics, but teachers who wish to know of it are advised to



FIG. 88



FIG. 89



FIG. 90

FIG 91

read from the many books now available on the subject.

CHAPTER TWENTY-ONE

PUTTING THE SHOT

THOUGH this is an event which usually appeals to boys, it is one in which British athletes generally have not shown a high standard of performance over the years. By its wider introduction in schools (in spite of the difficulties mentioned below), not only will the enjoyment in the event be realised by a great number of children, but also the standard of British shot putting will ultimately be raised in national and international competition.

It must be emphasised, however, that whereas a teacher needs little specialised technical knowledge to impart the fundamentals of running, hurdling, jumping and vaulting, in shot putting and the other throwing events a higher and more detailed degree of comprehension of the finer points of the skills is required.

Shades of difference between what is good and what is bad technique are very fine in these events. In shot putting, a slight alteration in the disposition of body-weight or a split-second error in the timing of the landing of the feet at the end of the glide may make a considerable difference in performance.

Furthermore, shot-putting instruction does not lend itself quite so easily to being split up into clearly defined progressive stages. Set out at the end of this section are the few progressions recommended, though they are much harder to adapt to the physical-training lesson or to class or group teaching than others given for the non-throwing events.

It is in the throwing events in particular that attempts have been made to cater for the desire for more and more progres-



FIG 92

[Action Photos]

sions by the introduction of innumerable semi-gymnastic movements, which, as has been suggested in Chapter 12, are far removed from the actual skills of the events and which could not be readily transferred from the gymnasium to the field.

SHOT-PUTTING TECHNIQUE

Full details of the rules of this event are contained in the A.A.A. handbook. Briefly, however, the shot must be held by only one hand and at no time throughout a trial is it permissible to take it behind the plane of the shoulders. In other words, it must be a one-armed thrust or push away from the body. This is a 'put'—as distinct from a throw.

All movements must be carried out from within a circle of 7-ft. diameter, which has a stop-board fixed into the ground so



FIG. 93

that its inside edge coincides with the inside of the line marking the front of the circle (Fig. 92). The athlete may not touch the line of the circle, the top, ends or front of the stop-board, nor the ground outside the circle, during the put, but he is allowed to touch the *inside* of the board. At all times in competition the athlete must leave the circle from its rear half after the missile has landed.

In adopting his preliminary stance the shot putter faces the rear of the circle. The shot rests on the roots of the fingers, clear of the palm, with its centre of weight slightly towards forefinger and thumb (i.e. the strongest part of the hand). The thumb and little finger provide lateral support, while the remaining fingers—spread slightly—rest behind the centre of weight (Fig. 98).

That part of the shot between forefinger and thumb is then placed on the hollow just above the collar-bone, and the head is turned slightly to the rear to keep the shot close into the shoulder. In this position the elbow of the putting arm should be held so as to support the weight of the shot and keep it in close to the neck (Fig. 92, good; Fig. 93, poor). Viewed from above the position of the head, shot arms and shoulders should approximate to that shown in Diag. 30. In this way the main muscle groups of the shoulder girdle and putting arm are maintained in as relaxed a position as possible prior to the final explosive thrusting out of the arm. The shot is immediately above an imaginary direction line which passes through the circle's and stop-board's centres.

Starting positions vary greatly, for whereas some shot putters will assume an erect trunk position at this stage, others will tilt it to the rear so that the top part of the body is actually outside the circumference of the circle. This is done with a view to obtaining an early 'pulling' position. However, in all fundamentally sound starting positions the body-weight will be kept over the direction line, with the seat in. There should be more weight on the rear than on the front leg, and on no account should the performer lean forward.



DIAGRAM 30 —SHOT-PUTTER
VIEWED FROM ABOVE

Movement across the circle is initiated by a slight over-balancing towards its centre resulting from the taking away of the body-weight's front 'prop', i.e. the front leg. This is brought back towards the supporting leg which, at the same time, 'gives' slightly at ankle, knee and hip joints. This controlled over-balancing then smoothly flows into the rear-leg drive and front-thigh lift which drive the athlete across the circle (Fig. 94). It is important to make these movements along the direction line and *not* to over-emphasise the movement of the front leg, which should be flexed at the knee joint so that its foot is never very far off the ground during the movement across the circle.

As it is essential to move the shot in as horizontal a direction as possible during this movement, and to flow continuously into the putting action of the front half of the circle, the shot putter 'glides' or 'shifts' over the ground with his rear foot, which never really leaves the ground. This movement is *not* a hop.

Throughout the gliding movement the shot remains over the line of direction, close into the neck and well under the athlete's control. There must be no hurry to turn the head in

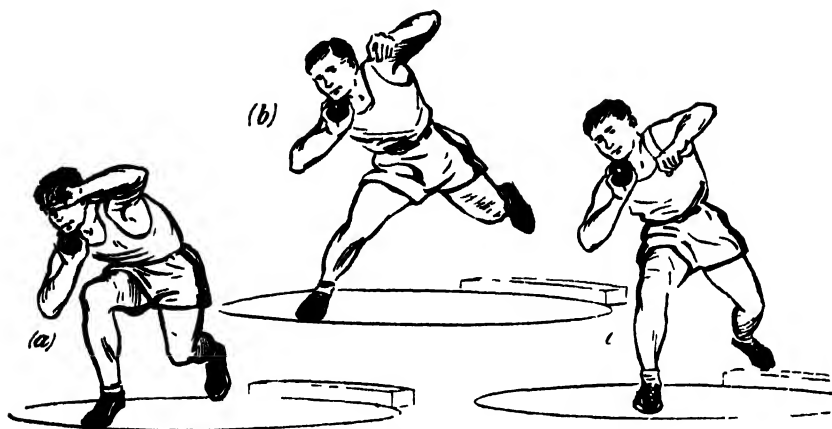


FIG. 94

the direction of the put, as this mistake would encourage a landing in which too much body-weight would be over the front leg; and it would also bring the shot away from the body, thus encouraging the arm to strike too soon.

The straightening of the rear leg in the initial drive across the circle (Figs. 94, *c*, and 95) is quickly followed by a reflexive flexing of the corresponding ankle, knee and hip joints. As a result, the rear foot is 'snatched' from a position well to the rear of the hips to one well beneath them (Figs. 94, *d*, and 92). Throughout the glide, the rear foot should remain close to the ground and travel directly across the circle. The other leg should continue to move forward with its foot at no time more than eighteen inches above the ground. Meanwhile, the athlete should make a conscious effort to land with his weight already over the rear leg and on no account must he waste time and destroy shot speed by adjusting his body position *after* landing.

The distance travelled by the rear foot in the glide will depend upon the putting stance of the athlete in the front of the circle. Tall men usually need wider bases than short ones,

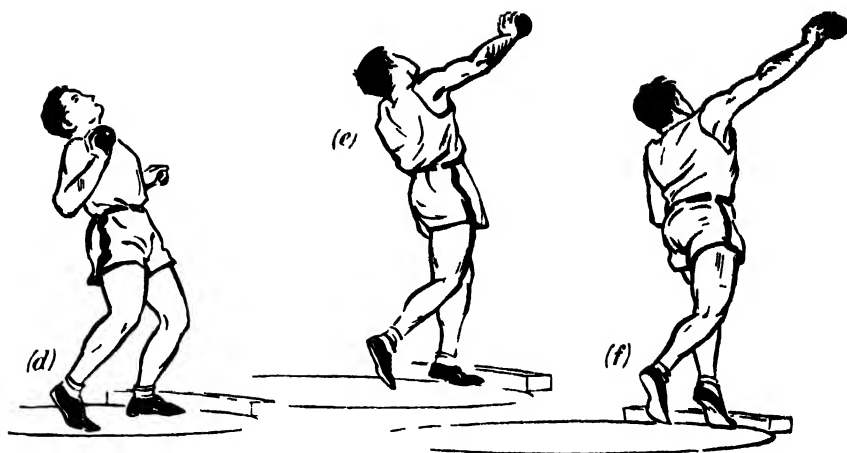


FIG. 94

and must therefore glide over shorter distances. On the other hand, short athletes have more of the circle in which to build up initial speed prior to the put. Speaking generally, a six-foot athlete's rear foot will come to rest about half-way across the circle (Figs. 92 and 94, *d*). In this position the toes of the rear foot and corresponding knee should point across the direction line and somewhat to the rear of the ring.

The athlete should arrive in the position shown in Fig. 92 with his rear foot coming to rest a little before the front foot, which is placed slightly to the side of the direction line. There is, in fact, a slight rock-over movement, which helps to maintain continuity of movement of the shot. The missile, shoulders and hips should remain over the direction line (Figs. 94, *d*, 92 and 96). In this position the amount of backward lean of the trunk is of particular importance. Every athlete should strive for as much lean as he can manage in order to gain a maximum contribution from his powerful back muscles. Of course, the stronger the boy the more the lean, but we find that most boys can use more than they would estimate.



FIG. 95



FIG. 96

There should be no pause between the glide and the put. Even before the front foot touches the ground to provide resistance to the movement, the rear leg drives. After the front foot lands the muscles on the left side of the athlete pull powerfully. These two movements, performed simultaneously, lift and transfer the body-weight from rear to front leg and the trunk rotates on a vertical axis, *which continues to move along the direction line*. With the weight over the front leg and the hips and shoulders square to the front, the putting arm strikes (Figs. 94, *e*, *f*, and 97). Meanwhile the other arm moves around and back in a flexed position, while the head remains erect. Note that in a good put the seat does not protrude because the legs have been used correctly.

As a result of this powerful and correctly timed leg and trunk movement, the shot is, so to speak, already on its way by the time the arm is brought into action. At this stage the task is to give acceleration to an already moving object. Athletes who fail to use the legs and

trunk first, put a great strain on the putting arm, which often necessitates shifting the shot farther down into the palm of the hand.

Angles of release will vary between about 37 and 43 degrees, but with all other things equal, tall men will normally have a smaller angle of release. When the missile has *left* the hand, the rear foot should move up to the stop-board, while the front leg swings back to keep as much body-weight in the ring as possible. The supporting (rear) leg should 'give' at the knee to lower body-weight and offset a tendency to topple out of the circle.



FIG. 97

SUGGESTED PROGRESSIVE STAGES

1. * **Holding the Shot**

Shots are placed on the ground, one in front of each boy. The teacher then demonstrates how the shot can be picked up with the fingers and hand correctly disposed around the weight, the little finger and thumb giving lateral support; the remaining fingers held somewhat together and behind the weight which, ideally, rests on the roots of the fingers. The wrist is flexed (Fig. 98). The class repeats and the teacher checks. (This can be carried out in 'master-and-pupil' fashion.)



FIG. 98

2. * Supporting the Shot and Correct Upper-body Position

(This can be practised with either shot or medicine-ball, or even without either.) The teacher demonstrates. The shot is placed in the hollow of the collar-bone and against the neck; the fingers and palm face the direction of putting with the wrist flexed and the head turned slightly to the rear. The putting elbow should be low here (Fig. 92). Relaxation of shoulder girdle is brought about as a result of a slight rounding of the shoulders and correct positions of head and arms. The left elbow is held fairly high (forearm drooping) and somewhat round to the front of the body. The palm and elbow of the putting arm are eased forward slightly (Figs. 92 and 96). The class copies as the teacher brings out these points, and then practises in pairs, 'master and pupil'.



FIG. 99

3. * Demonstration of Value of Legs in Lifting and Throwing

It is essential to bring out the importance of this at an early stage in the instruction. Shot putting is really only another form of weight lifting, and here the teacher shows how something which is very heavy can be lifted by use of the legs and trunk alone, as, for example, the

Fireman's Lift (Fig. 99). Practice should be given in this.

4. * Leg and Trunk Action in Putting the Shot

Having made the point that heavy weights have to be first lifted with the legs and trunk, before the arms are brought into play, the teacher now shows how those legs are used in shot putting—without a shot.



FIG. 100



FIG. 101

The class adopt an easy astride position in which the legs are flexed at the knee, the seat is in and the hands are on the hips. The body-weight is then eased back over the rear (right) foot. The other foot rests only lightly on the ground at this stage (Fig. 100).

The boys now practise driving from the rear leg as they resist from the front. *In driving, the body-weight should be lifted (as the rear leg straightens), rotated and moved forward over the front leg.* This last detail is of particular importance. The boys should feel how the leg action rotates their hips. It is emphasised that the left hip must *not* go back as the right is driven forward. At the completion of each leg drive the boys should finish up on the toes of both feet, with the rear foot still on the ground (Fig. 101).



FIG. 102

This leg exercise is then practised with the boys holding an imaginary shot into the neck, and with the head and arms held in the correct positions. No attempt is made to use the arm after the shoulders have been driven to the front. The elbow of the putting arm must finish up in line with the shoulders.

Finally, with shot or medicine-ball, these movements are carried out forcefully so that the missile is lifted off the shoulder without the use of the arm at all. Competitions for distance can be held, putting from behind a line (Fig. 102).

5. * The Standing Put (Medicine-ball or Shot)

(a) From the position shown in Fig. 93, the boys then walk into the putting position (Fig. 92), finishing off with a forward-upward thrust of the arm to put over a low beam or bar. (In pairs, to and fro.) (Fig. 103.)

(b) As proficiency increases, the teacher stresses a slightly wider stance and a more pronounced backward lean of trunk in the initial position to obtain a powerful trunk 'pull' before the arm is used. The keeping up of the left (non-putting) side is also emphasised. The left arm must *not* be pulled back, but should merely be flexed, with the elbow carried high. The importance of leg drive should continually be stressed. (In pairs; 'master and pupil'.)

6. * The Reverse

The teacher should delay the teaching of this until the leg drive and body pull have been so mastered by the majority of the boys that some balance-regaining movement is obviously

PLATE IV



Fox Photos

Brian's, first shot putter to beat 50 ft. with the 16-lb. shot. John A. Savidge London Athletic Club, shows a good position immediately prior to landing in the front half of the circle.

necessary. It should be stressed that one should only reverse as a result of a correct leg and trunk movement; *that the changing of the positions of the feet is not actually a part of the put.*

The movements are at first practised without the shot or medicine-ball. The standing putting movements are carried out in slow motion (with the teacher), and then the rear foot is brought up to the white line or improvised stop-board before the front foot leaves the ground and the rear leg swings back; the boys flex the right knee to lower body-weight and so remain in the imaginary circle. It should be explained that this movement will sometimes be sufficient for the putter to remain in the circle when the put is a slow one and the follow-through incomplete.

Then they are shown the full reverse in which the feet pass each other in the reverse, i.e. the front foot starts back before the rear foot reaches the board (actually the rear foot is within about two feet of it as this begins).

Standing putting continues with a shot or medicine-ball, but now the boys reverse correctly *when the puts are sufficiently good to demand such a movement.*

7. The Glide or Shift

The teacher should explain that hitherto only about half of the circle area has been used to give the shot speed. He should stress that the rear half of the circle can be used to advantage provided (a) the shot is kept on one line, (b) the early movements are not too vigorous, (c) the putter lands in the proper putting



FIG 103

position and (d) there is continuity and an acceleration from the rear of the circle to the moment the missile leaves the hand.

(a) * Without a shot or medicine-ball, the class adopts the leg and trunk position shown in Fig. 93. Here there is just sufficient weight over the left foot for the body to overbalance towards the centre of the circle when the left foot is withdrawn; the right leg is slightly flexed at the knee. The left leg is withdrawn towards the right and the slight overbalancing already referred to initiates the gliding movement across the circle. The right (rear) leg drives and the left leg lifts naturally along the line of the circle's diameter. This movement stresses a horizontal, *shifting* action rather than a hop. The right foot never leaves the floor and the left is raised only about a foot above the ground (Fig. 95). The shot putter lands in the front half of the circle with the feet placed as shown in Figs. 94(c) and 96, the front foot coming to ground a split second after the right has come to rest (resulting in a slight rocking movement which assures continuity between glide and put). The overbalancing and shifting movements should then be practised in pairs.

(b) * The class then practises the gliding movements already mentioned, alighting in the front of the circle in the correct putting stance (Fig. 94(c)) and with the weight over the rear leg. Throughout these movements the shoulders should remain steady (so that the shot is kept on its line of direction across the circle), and the head should be turned very slightly to the right-rear (Figs. 94(c) and 96). The progressions are practised in pairs, 'master and pupil'.

(c) * The above is then practised with medicine-ball or shot, the emphasis now being on controlling the missile in the gliding movements across the circle. (In pairs.)

(d) * The final stage consists of linking the glide to the standing put movements and reverse.

In polishing up the general performance the following points should be noted:

(i) Vigorous and extravagant leg and body movements before gliding should be discouraged.

(ii) The importance of keeping the arm and shoulder girdle relaxed until the final thrust of the putting arm should be stressed.

(iii) Emphasise the necessity for keeping the shot over the line of direction all the time.

(iv) Eliminate any tendency to pause between the glide and the put.

(v) Insist on the correct use of the arm *only* after the legs and trunk have made their contribution. Stress a good follow through.

CHAPTER TWENTY-TWO

THROWING THE CRICKET BALL AND JAVELIN THROWING

THE Scandinavian countries were the first to make a thorough study of javelin-throwing technique, and this they did to such good effect that they have lost only two Olympic titles for the event since the inception of the Olympic Games in 1896. The current world record for throwing the javelin is held by E. Danielson of Norway with 281 ft. 2½ in.

To-day, however, a knowledge of the technique has spread from Scandinavia to many other countries of the world, so that during the past few years United States, German, Polish, Hungarian and other athletes have beaten 250 ft. Despite a continuing high standard of general performance in the Scandinavian countries, their success in an Olympic Games of the future is no longer a foregone conclusion.

Until fairly recent times few bothered about javelin throwing in Britain. There was little help or recognition for the athlete who showed an interest in it, and consequently our standards were exceedingly low. However, our attitude towards the event has changed considerably during the past few years, particularly since the last war. It is gratifying to note to what extent this event is being introduced more and more into the programme of school sports throughout the country. Already this is having its effect on the standard of adult performance, so that our standard (which is still poor, however) is improving steadily. We now have a number of men throwing over 200 ft., but still very few who can manage 220 ft. or better. The national record stands at 241 ft. at the time of writing

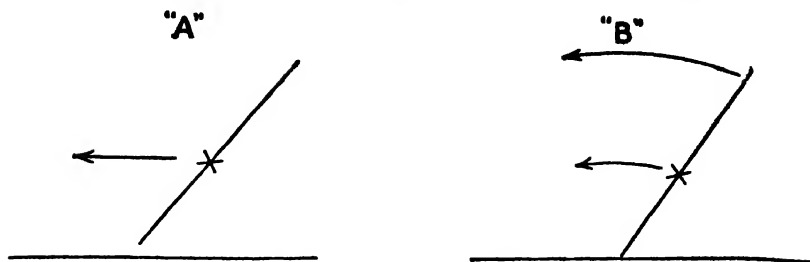


DIAGRAM 31 —THROWING THE JAVELIN

Tests have proved the close relation between javelin throwing and cricket and baseball throwing, and a teacher may well improve the outfield throwing of the school's cricketers and develop javelin performers at one and the same time. Indeed, for the more junior boys throwing the cricket ball is a more suitable event, and one from which it should be easy to progress to javelin throwing. In both these events it is important to inculcate the fundamental principle of *throwing on the run*; of getting into a throwing position without perceptible loss to the thrower's forward speed.

Perhaps the best way to understand the broad outline of the technique of this event is to think of the thrower as a sloping lever which moves at speed with its lower end just clear of the ground; the centre of gravity of this lever (marked by a cross in our diagram) is at about its middle point (Diag. 31, *a*). A good thrower will have his body sloping back in such a fashion immediately before his throw.

As the lever moves just clear of the ground, all parts of it are moving at the same speed—the top, the middle and the bottom. But when its lower end contacts the ground and remains fixed to one spot the lever hinges about this fixed point. Then, although the centre of gravity continues to move on at the same speed, the parts of the lever below the centre of gravity are retarded while those above this point are accelerated (Diag. 31, *b*).

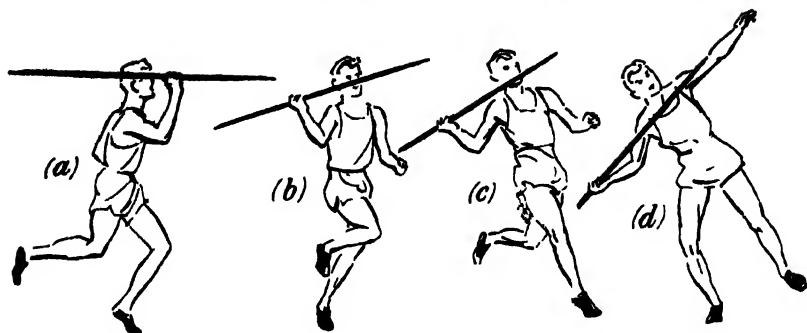


FIG. 104

This brings out a fundamental principle of good javelin throwing. The athlete runs at maximum controlled speed into his throwing position (Fig. 104, *f*), where the leading leg and line of the trunk can be likened to our lever. The body then pivots about the front foot at tremendous speed (in a good throw it is possible almost to double the speed of the top parts of the body), and leg-driving and trunk-rotating movements are added. The thrower then uses a second lever, the throwing arm, to add further speed to the javelin. Only in this way do the world's best javelin throwers attain release speeds of over 60 m.p.h.

It will be seen that the faster the lever moves over the ground before its movement is checked, the faster will the top parts move about the fulcrum. But this must not be taken to imply that javelin throwers must run at a full springing pace before throwing, for the question of control has also to be considered. And this is just where a great many throwers make their biggest mistake, for they use too much speed in their preliminary run. Many could throw farther with a run of only five or six easy strides.

There is a variety of methods of grasping a javelin. The Finnish grip (Fig. 105), where the longest and strongest finger of the hand is used to the best advantage, is recommended.

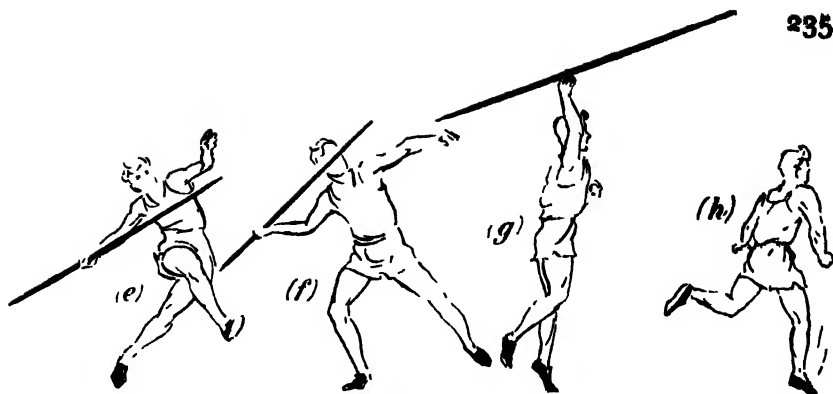


FIG. 104

Prior to starting his run the athlete adopts the 'carry' position shown in Fig. 106. He then runs easily and with a smooth acceleration, holding the javelin so that it points along the line of running with its point slightly down (Figs. 104, *a*, and 107). A suggested stride plan for a schoolboy thrower is shown in Diag. 32.

After attaining what he has found to be his maximum controlled speed, the thrower then strikes a check-mark on the ground with his left foot (Diag. 32). He uses this mark to give him an indication of the place where he must begin to get his body into a throwing position on the run. If the mark is situated too far away from the curved scratch line, he will fail to be credited with his actual throwing distance (since all measurements are made to the inside edge of the curved line). Conversely, if the check-mark is too close to the scratch line, he will be in danger of cramping his throwing movements or overstepping the line, which will automatically entail disqualification.

Between the striking of this check-mark and the throwing of the missile, the athlete must change the slight forward trunk tilt to that of a distinct backward body-lean where the weight is well over the back leg, and at the same time he must rotate the trunk and hips backward. These movements put him into

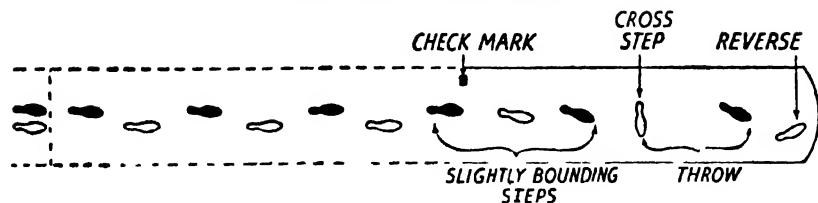


DIAGRAM 32.—STRIDE PLAN FOR THROWING THE JAVELIN

a powerful *pulling* position, and in javelin throwing the emphasis must be on *pulling* (Fig. 104, *f* and *g*). During these 'transition' strides, as they are sometimes called, he has to gather himself for the throw, just as the long jumper must gather before the take-off. All these things must be brought about without any perceptible checking to the forward motion of the body as a whole, and without taking the javelin from its general line of movement above the ground.

These adjustments in body position are best made when the first two strides after the striking of the check-mark are *slightly* bounding, and the feet are put down at gradually increasing angles to the general running line (Figs. 109 and 110; Diag. 32). A third stride is then taken, where the foot is put to the ground with the toes pointing at about right angles to the direction of running (Fig. 111 and Diag. 32). This 'cross step', as it is called, is a little shorter than the strides that immediately preceded the striking of the check-mark; i.e. it is somewhat shorter than its two predecessors. But here a careful balance



FIG. 105

must be struck between a stride that is too long and one that is too short; a third *bounding* stride is likely to check severely the forward progress of the athlete, and we have already seen how important it is to maintain maximum controlled speed before the throwing position is obtained. A stride which is too short will permit the weight of the body to rush forward and over the front leg in the throwing position without giving the athlete sufficient time in which to perform other important movements. If the athlete strives for a long but low and *fast* 'cross step' the result will probably be satisfactory.

The fourth stride after the striking of the check-mark is the actual throwing stride (Figs. 112 and 104, *f*, and Diag. 32). Here the front foot is put to the ground as quickly as possible after the landing of the rear foot in the cross step. It should be *slightly* to the side of the general line of running (Fig. 112), and with the toes pointing rather more forward. The faster the athlete's approach and the taller he is, the wider will be the stance in this throwing position. As the front foot goes out and the body-weight moves forward, the toes and knee of the other leg turn somewhat to the rear.

During these foot, leg and body movements the head and arms assist. The throwing arm is taken back



FIG. 106



FIG. 107



FIG. 108

FIG. 109

FIG. 110

loosely and directly over the line of direction, so that the javelin is close to the trunk throughout. To facilitate this movement, the athlete rotates his wrist in an outward direction (Figs. 108-111). The arm goes back in a relaxed manner, and at no time is it completely locked at the elbow. At the same time the non-throwing arm helps in the turning of the body and the reaching back of the throwing arm by moving round to the front (Figs. 104, *d* and *e*, 108-111). During the first three strides of the transition, the head can be turned through an angle of no more than 90° to assist the turning of the shoulders (Figs. 108-111).

The actual throw begins just a fraction of a second before the front foot comes to the ground in the throwing position. A slight movement of hips and trunk towards the athlete's front is rapidly accelerated as this foot comes to the ground, and the thrower quickly drives and turns in the rear knee and toes (Fig. 104, *e*, *f* and *g*).

This rear-leg action is of the utmost importance, and is not



FIG. 111

FIG. 112

FIG. 113

to be confused with the slower, more pronounced rear-leg drive of the shot putter; the emphasis being on the *turning in of the rear knee*. The speed of trunk rotation is brought about, by this plus the resistance set up by the front leg.

It is essential to obtain an initial pull on the javelin as a result of leg and trunk action, and with the throwing arm delayed for a second pull a moment later (Fig. 104, *f*). It is impossible to delay the arm in this way without rotating the wrist and javelin upward at the moment the front foot comes to the ground (Figs. 104, *e* and *f*, and 112). Moreover, it is obviously necessary to cultivate great flexibility and strength in the corresponding shoulder. As the weight of the body continues to move forward over the fulcrum of the front foot, the throwing arm strikes. A good thrower will endeavour to lead with the elbow of this arm (Fig. 104, *g*), and, indeed, such a movement is essential if injury to the elbow joint is to be avoided. This is a point which must be stressed again and again in teaching javelin throwing

to boys. An attempt should be made to throw the javelin over the corresponding shoulder (although, in fact, it will be released slightly to the side of this shoulder).

The javelin should be released with the body-weight well over the front leg and with the trunk erect. One of the most frequent errors seen in javelin throwing is that of starting the throw too late and hence hanging on to the javelin far too long. The throw should be started from as far back as possible and finished as the trunk reaches the vertical. The throwing movement is accompanied by an outward rotation of the hand, which continues after the javelin is released and which actually prevents elbow injury. The rear leg, which has been brought forward (with foot close to the ground and with the heel turned out) to permit the widest possible range of trunk and arm movement, now moves ahead of the supporting leg to check the forward progress of body-weight in the follow-through (Figs. 104, *h*, and 113). Its foot lands well in advance of the body's weight and, in a well-judged throw, within a few inches of the inside of the scratch line and slightly to the other side of the extreme line of direction (Fig. 113 and Diag. 32).

The foregoing details perhaps give an impression of a series of separate movements divorced one from another, but this is decidedly not so. The thrower runs smoothly into his throwing position and lifts, transfers and rotates the body-weight in one continuous motion which, in its turn, flows into the tremendously powerful arm pull.

THROWING THE CRICKET BALL

The following progressions are suggested (those marked * being suitable for indoor lessons):

(a) * **Holding the Ball** (Fig. 114)

(b) * **The Standing Throwing Position**

(1) The boys adopt the position shown in Fig. 100, where the thrower faces at right angles to the throwing direction with the

feet a little more than shoulder-width apart. The body-weight is over the back leg, which is flexed at the knee. The hands are on the hips. The rear leg drives and the front leg resists. Boys should feel subsequent hip rotation as a result of holding the hips (Fig. 101).

(2) The class work in pairs. 'Pupils' take up previous position with the arms relaxed to the sides.

'Masters' then grasp the index and middle fingers of the right hand and, while the leg and trunk actions are slowly performed, guide the throwing arm through its action with the elbow leading and the arm flexed. Note the position of the non-throwing arm, which is kept up and flexed (Figs. 115-117).



FIG. 114

(3) The class then practises both the leg and the throwing arm action, loosely swinging the arm from the shoulder in a rhythmical movement, whilst the trunk rotates and the weight moves over the front foot.

(4) The previous movements are repeated, and the follow-through of the throwing shoulder and the subsequent reversal of the feet are added (Fig. 113).

(5) These movements (4) are carried out with ball now, lightly held.

(c) * The Transition Strides into Throwing Position

(1) The class should have the reasons for learning these movements explained to them. Then, without the ball and from a standing position in which the left foot is forward (Fig. 118), they are taken through the two very slightly bounding strides and the shorter front cross step and into the throwing position at a walk (Figs. 118-122).



FIGS. 115-117

(2) The above is repeated with trunk and arm movements added; the throwing movements and reverse being included. During the first two strides and cross step the throwing arm should be taken back and the trunk rotated to the right and leaning well back for a long pull (Fig. 122).

(3) The movements are then speeded up, the longer tempo of the first two strides and slightly shorter timing of the cross step being stressed. At first the boys should pose in the throwing position on arrival, but later they pass through this and reverse.

(d) **Throwing** (Out of Doors)

(1) From a sideways standing position the boys then take a long fast step into the throwing position and release a cricket ball with correct follow-through of the right shoulder and the subsequent reverse (Figs. 123 and 124). The correct leg action and the late

usage of the throwing arm should be stressed here by the teacher.

(2) Beginning from a standing position with the left foot forward, the performers take their two lightly bounding strides and cross step into the throwing position, releasing and reversing. Stress the relaxation of the throwing arm and shoulders prior to throw and easy, flowing rhythm of strides with final leg movement and fast right hip.



FIG. 118

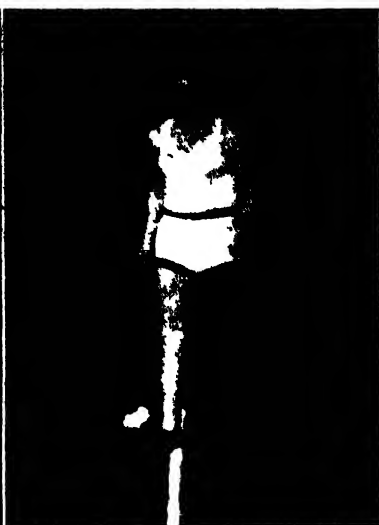


FIG. 119



FIG. 120



FIG. 121



FIG. 122



FIG. 123



FIG. 124

(3) Finally, three, five, and then seven approach strides are added to the transition and throw. Check-marks for transition are then (see Diag. 32) adjusted to bring the thrower as close to the line as possible at the end of the reverse.

THROWING THE JAVELIN

All the movements previously taught will be of benefit to the boys in the learning of javelin-throwing technique. A javelin is a much heavier and more difficult object to control in the approach and transition strides, however, and there must therefore be some retracing of the learning process before they actually go on to throw a javelin.

(a) * The class is taught how a javelin should be held (Fig. 105). Note that the middle finger and thumb rest behind the top edge of the binding, i.e. at that part of it farthest away from the point. The forefinger rests lightly around the shaft and the remaining two fingers rest lightly on the binding. In this fashion the javelin rests in a natural groove made between the fingers and the ball of the thumb. The javelin should *not* be gripped tightly.

(b) * The shaft is now held in the position shown in Fig. 106.

Note:

- (1) It points towards the direction of the throw.
- (2) The point is slightly below the tail.
- (3) The shaft is immediately above the right shoulder.
- (4) The point of the elbow lies mid-way between a frontal and side position, and the arm is as relaxed as possible.

(c) * They now practise running with the javelin held in this position (Fig. 107). The shoulders should be held loosely, and there should be an easy counter-balancing movement (*slightly* backward and forward) of the javelin and the throwing arm, whilst the other arm, flexed, swings easily to and fro and slightly across the body. The trunk tilts forward a little. The run is an easy one, gradually increasing over about fifteen strides to a three-quarter effort. The boys then ease down.

(d) The class stands in the 'carry' position already practised, (b), and throws into the ground at a point approximately ten feet ahead, following through with the right shoulder and reversing slightly to the right of the throwing line. Stress a pull *through the javelin's length* and a landing position where the shaft points directly in the line of throw (Figs. 125 and 126). A pace is taken forward with the left foot immediately prior to the action of the throwing arm.

(e) * The teacher then leads up to a proper standing throw.

(i) (1), (2), (3) and (4) of THROWING THE CRICKET BALL (b) (page 240) are then repeated.

(ii) Then the 'pupil' adopts and poses in a throwing stance (Fig. 130).

(iii) In pairs, the 'pupils' slowly carry out movements of leg drive and arm pull, while the 'masters' resist *a little*, holding the javelin at the tail point (Figs. 127, 128 and 129). The 'master' should release his hold as the thrower's hand reaches above the throwing shoulder to permit a reverse with the javelin still grasped in the hand (Fig. 129).

(iv) The class throw lightly, taking a fairly long step into the



FIG. 125

throwing position. Here should be stressed the rear-leg drive, trunk pull and the late use of the throwing arm. The throw is followed by a reverse.

(f) * Transition footwork (as for cricket ball) is then repeated, first without the javelin, and then very slowly by numbers, and then at a walk, with the javelin held.

From the 'carry' position, with the left foot forward—striking a check-mark (Fig. 108)—the throwing arm is eased back and slightly down to the right-rear as the first two strides are taken and the trunk turns and leans back (Figs. 109 and 110). On the cross step the shoulders and chest face at right angles to the throwing line, the left arm is loosely flexed in front of chest to bring the left shoulder well round (Fig. 111). The class poses in the throwing position (Figs. 112 and 130) and repeats, 'master' and 'pupil'.

(g) * The above is then carried out at a trot, with emphasis on the rhythm of the slightly bounding and cross steps—a longer tempo for the first two and a slightly faster one for the front



FIG. 126

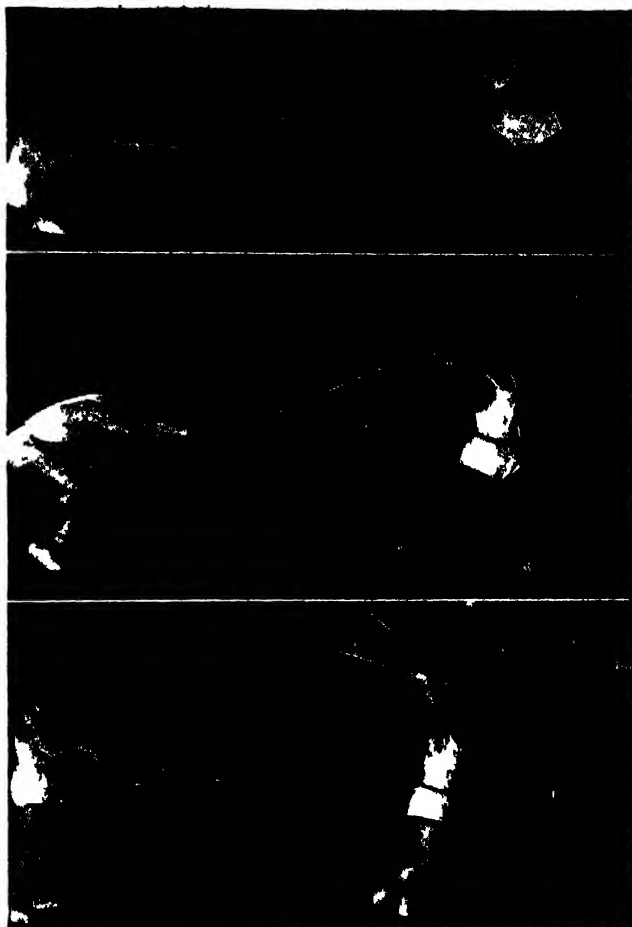


FIG 127-129

cross step. Again the boys pose in the throwing stance.

(h) The above is repeated and a light throw and reverse are added. Stress throwing over the right shoulder; keeping the left side of the body well up; leg drive and late arm action with the elbow leading; continuity; smooth acceleration.

(i) Now add first three, then five and finally seven strides

to those of the transition. These changes will necessitate gradually moving the check-mark (for the left foot) back as the approach speed increases; final reversing should always take place within inches of the curved throwing line. Light throws continue.

Throwing for distance should take place as soon as the funda-



FIG. 130

mental ideas of leaning backwards and turning away from the direction of throw have been learnt. The emphasis however should be on full speed efforts with concentration on the skill of the throws, then distance will result. To do this frequently a considerable amount of upper-body strength is required and attention should be given to this aspect. Above all, stress the leading of the arm action by the elbow, because if this is not done power is lost and injury to the arm will result. Right throughout the instruction stress that only controlled speed is of any value to an athlete and especially to a thrower. Do not permit long, fast approaches. Emphasise that the approach is of secondary importance to the actual throwing position.

But, nevertheless, do not dwell too long on the standing throw, otherwise the boys will get into the habit of pulling *horizontally* with the throwing arm. Such a pull should, in fact, be executed by the legs and trunk, the arm's contribution being that of a *lifting* motion. This can only be acquired by *throwing on the run*.

CHAPTER TWENTY-THREE

THROWING THE DISCUS

THE origin of discus throwing is lost in antiquity, but it is known that the event dates far back to the days of Ancient Greece. It was certainly included in all the great Greek festivals, and was one of the events of the celebrated Olympic Pentathlon competition which determined the best all-round athlete of the Games.

The rules and techniques of throwing were then very different from those applying to-day. From the discoi of those days which have survived, we know that the Greek athlete threw a circular plate of stone or metal weighing anything from two and a half to fifteen pounds. It would seem that its size and weight varied according to the age of the contestants and the rules of the festival in which they competed.

Philostratus, in a passage describing the death of Hyacinthus, tells us that the athlete of his day threw with a rope-like pull, somewhat underarm, and it appears that a thrower could take as many steps as he pleased before throwing from a 'balbis'—i.e. a sloping platform or merely a line marked out on the ground. Myron's famous statue bears out this description.

To-day the full-sized discus weighs 4·4 lb. (2 kilogrammes), and it is of a very much smaller circumference than that of many of the ancient missiles. Furthermore, it is now thrown from a circle of a diameter of 8 ft. 2½ in. (2½ metres). These circumstances are the cause of fundamental changes in the throwing technique, for now the discus thrower employs turning movements in the circle which build up speed, and

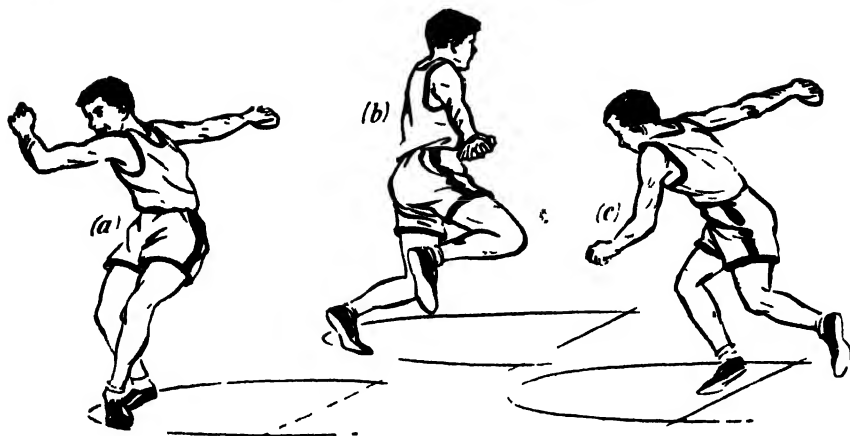


FIG. 131

then releases the discus at shoulder level with a round-arm, pulling action.

Like all other field events, the general standard of discus throwing has improved greatly in Britain in recent years. It is slowly acquiring a status it never enjoyed before in this country, so that many schools now include the event in their sports as a matter of course. This is as it should be, for to be a good discus thrower a person must be an athlete in the very best sense of the term, and the event is both pleasing to perform and to watch.

It is neither possible nor necessary in such a book as this to do justice to the thousand-and-one technical points that often beset and always intrigue the discus-throwing specialist. What follows is therefore merely an outline of the technique sufficient to the needs of the school, with the emphasis on fundamentals.

The method of holding the discus is shown in Figs. 132 and 133. It rests so that its rim meets the top joints of the fingers. These are spread comfortably. Too wide a spread will make it impossible to support the discus in this way, and if the fingers are too close together the athlete will be unable to impart the spin

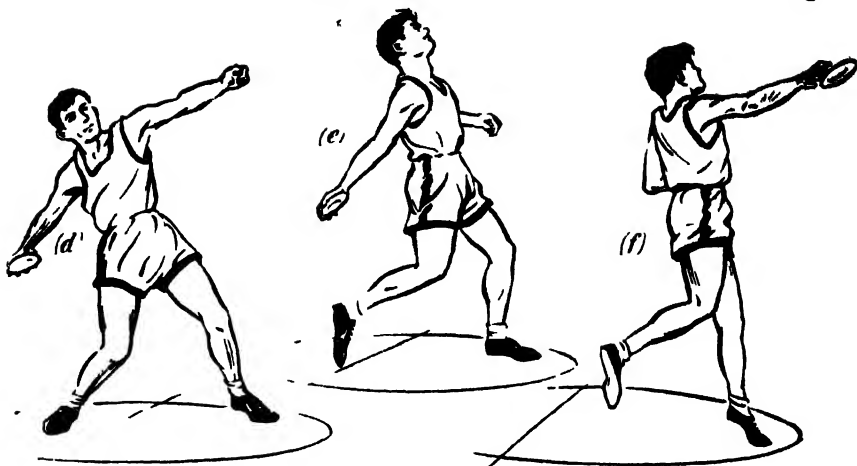


FIG. 131

which keeps the missile steady in flight. Note that the thumb has been moved away from the forefinger so that its tip is about level with the discus rim. Note also that the top of the missile rests against the forearm. The palm of the hand covers, and but lightly touches, the brass plate in the middle. The discus is *not* gripped.

Champion throwers take up a stance in the rear half of the circle with their backs to the throwing direction (Fig. 131, *a*). Most schoolboys too can adopt this method (Fig. 134). It has the advantage of using more of the circle and enabling the athlete to get more 'wound up' in the rear of the circle. Some, however, may find it easier to start side-on to the direction of throw (Fig. 135).

With the feet in this position, the thrower then carries out a series of preliminary swinging movements, usually no more than three. These set a throwing rhythm in motion, help in an adjustment of balance and give the thrower time to build up concentration. The swings are performed unhurriedly, with poise and relaxation. The general sequence of movement is shown in Figs. 135, 136 and 137, where a boy is standing in the

centre of the circle prior to making a standing throw (i.e. *without a preliminary turning movement, and merely a training exercise*).

In the course of swinging the discus in these preliminary movements, the trunk is erect with the seat in and the body-weight transfers from one leg to the other, whilst the trunk turns through rather more than 90 degrees as the arm swings to the rear. The centrifugal force set up in the course of the swing is sufficient to keep the discus in position on the top joints of the fingers, and it is this force which tends to pull the thrower's almost completely relaxed arm into a straightened position. But at either end of each swing the missile must be supported in some way, or it will fall out of the hand. Therefore, the thrower turns the palm slightly to the end of the backward swing, and supports the discus with the other hand at a point in front of the body and about opposite the left shoulder. The throwing arm is slightly flexed at the end of the forward swing. Some athletes, however, keep the discus level with the hips throughout the preliminary swings (Fig. 134).

The head keeps in natural alignment with the shoulders; with the trunk it turns well to the rear on the backward swing. During these easy, building-up swings the non-throwing arm, flexed, holds a relaxed position slightly across and in front of the body. This promotes greater freedom of shoulder and trunk action, and balances the movements of the swinging arm.

As the arm swings to the rear for the last time, the thrower moves into his turning movements. This brings him into a position shown in Fig. 131, *b*. Note that the left foot has been shifted slightly to the athlete's rear as the swing takes place, with the toes and knee already moving in the direction of turn. With shoulders level and the trunk erect the thrower then transfers his body-weight on to his turning (left) leg. Note that the head is now turned so that the chin is above the left shoulder. Note also the 'sitting-down' position of the athlete at this stage.

The thrower now moves across the circle:

(a) With controlled acceleration throughout.

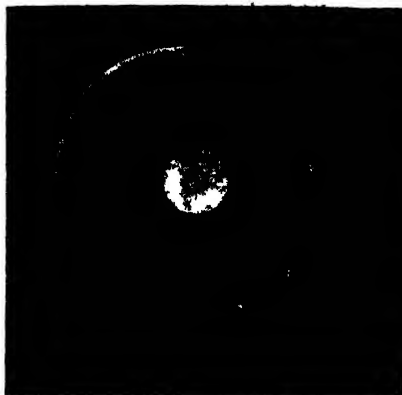


FIG. 132

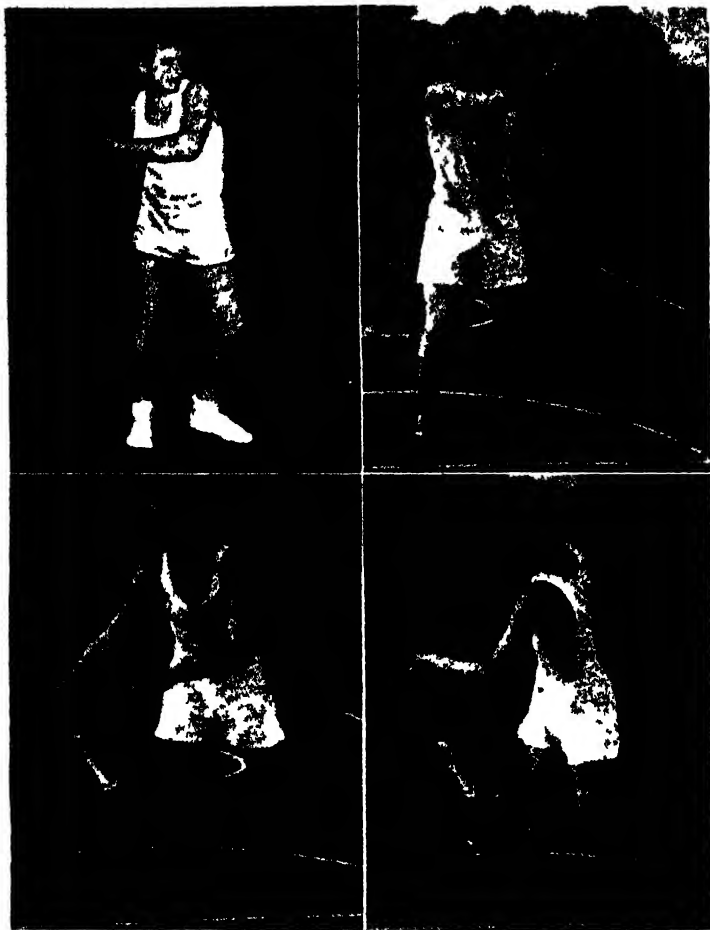


FIG. 133

- (b) Giving the greatest possible radius of swing to the discus.
- (c) Moving his axis of rotation in a direct line along the circle's diameter.
- (d) Maintaining contact with the ground for as long as complete smoothness and rhythm of throwing movement will permit.
- (e) Employing actions of feet, hips, trunk, head and arms which will get him into the most desirable throwing position in the front half of the circle.

The turning movements are shown in Fig. 131, *b*, *c* and *d*. A delayed pick-up of the right foot sets up a tension in the muscles of the trunk which, a moment later (see Fig. 131, *b* and *c*), is the cause of a hip acceleration which will put the thrower into a powerful pulling position. With shoulders level and throwing arm trailing in relaxed fashion, the thrower makes a three-quarter turn on his left foot (Fig. 131, *c*). Meanwhile the right leg, passing closely by the left, moves quickly across the circle to place the foot down approximately half-way across and on the direction line (Fig. 131, *e*).

For a brief moment both feet are off the ground (Fig. 131, *d*), but before the right foot comes to rest the left leg is already well



FIGS 134-137

on its way to take up its position in the front of the circle for the throwing position. By moving the feet and legs quickly at this stage, the thrower continues to accelerate the hips in relation to the shoulders and arm, thus putting the thrower into a powerful 'unwinding' throwing position later.

The right foot lands in the middle of the circle just a moment before the front foot takes up its position slightly to the side of the general direction line (Fig. 131, *e*). Note that the discus thrower does not require the pronounced backward lean of the shot putter; indeed, such a movement would upset the essential smoothness of swing. However, a slight trunk tilt to the rear is desirable (Fig. 131, *e*). The acceleration of the hips and shoulders is by this time so great that the throwing arm trails well behind—actually at about a right angle to the line of the shoulders.

As soon as it lands the right foot and the corresponding knee turn sharply in towards the direction of throw. This is yet another expedient designed to accelerate the hips, and the movement is without doubt one of the most important in discus throwing. At the same time this leg drives against the fulcrum of the resisting front leg. The trunk rotation speeds up as a result of these movements and the throwing axis also moves along its line with increasing speed. But now, for the first time, the body-weight *lifts*—purely as a result of correct leg action.

The principle so true of all the other throwing events, that the legs and trunk should first do their work before the arms are brought into the effort, also holds good in discus throwing. Now an unwinding process takes place. First the hips are driven upwards and to the front and these are quickly followed by the shoulders, then, lastly, comes a powerful arm pull (Fig. 131, *e, f* and *g*). Note that during all these movements the body remains erect, with its weight moving directly and without interruption across the circle.

The final arm pull is timed to coincide with a straightening of the front leg, with the athlete finishing well up on the ball of the left foot. The discus is released at shoulder level, with the palm downward (Fig. 131, *g*). It leaves the hand spinning in an opposite direction to the turning of the athlete in the circle, and from the index finger last. A powerful spin and correct release plane are essential to the stability of the missile in flight, for without this stability considerable distance is lost. In fact, whereas the

shot and hammer depend upon maximum release speed and proper angle of projection for their distance, the discus needs also a certain 'lift' or support from the surrounding air, which stability and correct release angle alone can give.

Angle of release in discus throwing depends upon height and speed of release, as with the other throwing events, but it is also affected by the speed and direction of winds. A headwind necessitates a lessening of the angle, and vice versa. As a guide an angle of about 35 degrees is recommended. In a good throw the

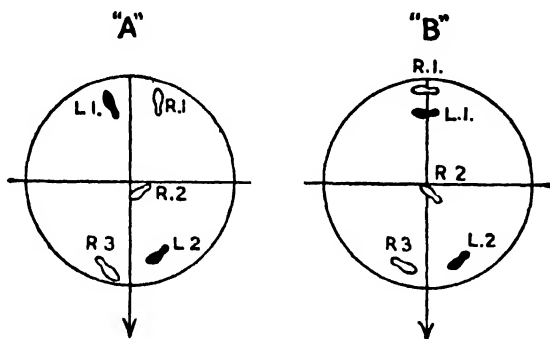


DIAGRAM 33.—MOVEMENT OF FEET FOR THROWING THE DISCUS

discus will leave the hand tilting slightly away from the thrower, but it will then level out in flight and begin to tilt the other way as it drops.

In a good throw the rear foot leaves the ground and moves forward immediately prior to the release to give greater freedom and range of hip and trunk movement, but it must be noted that the other, front, foot remains on the ground until the missile has left the hand. This foot is used as a point of resistance to the throw. When all movements have been timed correctly and the athlete has brought the full weight of his body into the effort, he finds it necessary to reverse the position of his feet to regain balance. The rear foot comes up to the circle's edge and slightly

to the right (Fig. 131, *h*, and Diag. 33, A and B), while the left leg and arm swing back. Balance and control are improved when the supporting (right) leg is then flexed at hip and knee joints. It must be emphasised that this changing of the feet, 'reversing', takes place *after* the discus has left the thrower's hand.

THROWING THE DISCUS

(Progressions)

When an attempt is made to devise a method of teaching an essentially out-of-doors and individual activity to a large number of people at the same time, or when teaching is done in the gymnasium, there is a very real danger of the introduction of unnecessary and somewhat artificial 'stages' which, in the long run, prove to be a considerable hindrance to the learning of the proper skills.

This is very true of discus throwing, where teaching success depends largely upon the thoroughness with which only a few progressions are covered, and definitely *not* on carrying out a series of drill-like movements set out over countless leading-up stages. Some valuable work can be achieved indoors without throwing the discus, but this is an event in which much of the skill learning must take place out of doors.

As far as indoor work is concerned the teacher is seldom in a position to permit the actual throwing of the discus. He must therefore confine the indoor work to the essential footwork and the movements of the turn, and normally using only a strap discus (Diag. 34). Indoor throwing is usually possible only with rubber quoits or rings, but a few teachers have taken the trouble to erect a captive net so that the discus itself can be thrown indoors.

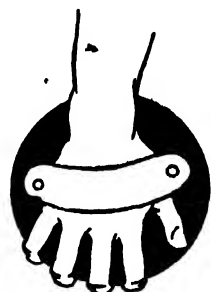


DIAGRAM 34.—A STRAP DISCUS

1. * **Holding and Bowling the Discus**

(* Denotes an activity which can be taken indoors.)

The class is shown how the discus is held (Figs. 132 and 133). They then practise in pairs, holding the discus and bowling it backward and forward to each other along the floor or ground (Fig. 138). The distance between pairs is gradually increased as proficiency is developed. It should be stressed that the discus peels off the fingers, index finger last; and is released with a slight squeezing movement between index finger and thumb. As the boys improve their ability to spin the discus they can be given a target a considerable distance away; e.g. out of doors, they stand at the half-way line of the soccer pitch and attempt to bowl the missiles into the goalmouth.

2. * **The Preliminary Swings**

Badminton, basket-ball or other lines marked out on the gymnasium floor can be used as lines of direction, and the boys adopt the foot positions shown in Figs. 135, 136 and 137. Then, with strapped discus, quoits or even without anything in the hand, they practise the movements of the preliminary swings (Figs. 135, 136 and 137). The emphasis here is on:

- (1) An upright position of the trunk.
 - (2) An easy trunk turning well to the rear on the backward swing.
 - (3) An easing of body-weight from one foot to another, resulting in a slight 'knock-kneed' movement of the legs.
 - (4) The counter-balancing position of the non-throwing arm.
 - (5) An unhurried, relaxed movement of the throwing arm.
- Vigorous 'pumping' of this arm should be discouraged. The weight of missile and arm should be allowed to do the work.

The relaxation of the throwing arm can be demonstrated in the following way. A boy is selected from the class, and he is

asked to relax his throwing arm so that it dangles to his side (without the discus, of course). When he is ready, the teacher then picks up what should be a lifeless arm. All too often, however, a sudden letting go of the arm is sufficient to show that the boy is actually helping to hold his arm up. This usually causes considerable amusement. The class is then sent off in pairs to practise.



FIG. 138

3. The Standing Throw

The interest of the class will not be held for long unless the teacher progresses to the actual throwing of the discus within a reasonable time. The standing throwing movements, therefore, should be taught next, but it would be wrong to suppose that this phase must be perfected before progressing to the turn and throw, for the teacher is not trying to teach a standing throw; he aims at the complete movement with turn. These co-ordinations are *not* one and the same, *nor is their relationship as real as it would at first appear.*

(a) * The class adopts the feet positions and carries out the preliminary swings shown in Figs. 135, 136 and 137. It is unnecessary to carry out more than three such swings. As the arm swings to the rear for the last time, the front (left) foot moves forward and slightly to the side of the direction line, thus giving the thrower a wider stance (Fig. 131, e). Note that the body-weight is over the rear leg as the front foot changes position. From a standing position, however, the trunk should be turned more to the rear.

(b) * Now the class can be given the exercise already recommended for shot putting (Figs. 100, 101). Here the feet are

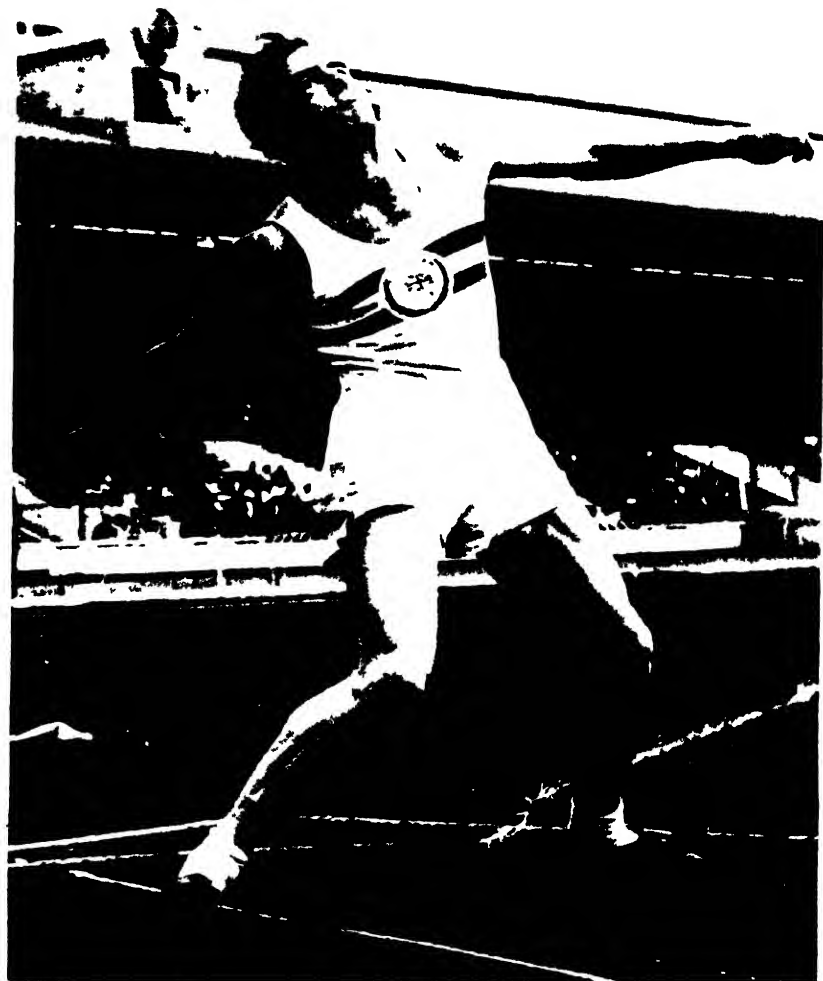
put into the throwing position and the weight is kept back over the rear leg (but, in discus, with the trunk almost erect). With the hands on hips the class practise the rear-leg drive and front-leg resistance, a movement that drives, lifts and rotates the body.

(c) * These movements can then be practised holding a strapped discus. Or, indoors, a quoit can be released at the end of the preliminary swings followed by a standing throwing movement. With indoor netting available, or out of doors, a discus may be thrown from this standing position.

(d) As an out-of-door practice, a javelin can be thrust into the ground, slightly to the thrower's left-front, and as the throw is made the student attempts to pass his left shoulder around the javelin's shaft. This stresses the importance of continuing to move the trunk *forward* as the rotation takes place. (Thus the axis continues to move forward.)

In the standing throw and in a throw which follows a turn (to be taught later), the following must be stressed by the teacher:

- (1) The arm pull on the discus must start from well back, and with the chest at first turned to face the rear of the circle.
- (2) In the course of the throw the body-weight moves from the rear to the front leg.
- (3) Throughout the throwing movement the trunk remains almost erect, with the seat in and the non-throwing arm flexed and kept well up.
- (4) As the rear leg drives, the corresponding knee and toes turn sharply in.
- (5) The throw finishes with the athlete well up on the toes of a straightened front leg. The straightening of this leg coincides with the final movements of the throwing arm.
- (6) The throwing arm is permitted to swing wide of the trunk. The discus is then released at shoulder level.



Mark Pharaoh (R.A.F.C.) has a best discus-throwing mark of 170 ft. By example he has done much to raise British standards in this event over the last few years.

4. The Reverse

During the early stages, when the boys are learning the details of the standing throw, a good follow-through should be encouraged to the point of permitting the throwers to take a pace forward with the rear (right) foot after the missile has left the hand, but this movement should never be carried out automatically; i.e. *it should happen only when it is necessary to regain balance.*

If the reversing action of the feet is taught too early in the progressions, many will use it as a part of the throwing movement, and much of the power of the throw will be lost. A bad throw, where the body-weight fails to be driven well over the leading leg, needs no reverse. With the trunk farther over to the front leg at the moment of release, a casual reversing movement is necessary to keep the thrower in the circle. Here the rear (right) foot moves up to the front foot before the front leg swings back. With further improvement, and particularly after a turn has been added, the changing of feet positions occurs so rapidly after the missile has left the hand that one leg passes the other in mid-air.

5. The Turn and Throw

The progressions which follow can either be carried out from a proper throwing circle or two parallel lines 8 ft. 2½ in. apart. In either case a direction line should be drawn in as a guide.

In teaching the turn and throw the general principle should be to teach walking round into the throwing position at first, starting slowly and building up to a marked acceleration in the actual throwing position. As proficiency increases, a slight jump can be introduced (Fig. 131, *c* and *d*) to produce a smoother action.

(a) * From the stance shown in Fig. 134 (and without the discus) the turn is practised at a walk, the right foot coming down approximately in the centre of the circle. The important

thing here is to get the feet into their throwing positions well in advance of trunk and throwing arm (see Fig. 131, *d* and *e*).

(*b*) * The above movement is then practised with a strap discus.

(*c*) As above, but with a throw.

(*d*) Gradually, in the course of turning and throwing, the rhythm is improved by the introduction of a slight jump from left to right foot (Fig. 131, *c* and *d*).

(*e*) As balance and control improve, the initial turning movements are speeded up—yet never to the point where it is impossible to note a marked acceleration in the final movements.

In teaching the turn it is important to stress the following points:

(1) The trunk remains almost erect throughout.

(2) As the thrower goes into his turn he picks up the right foot late.

(3) The body-weight should always be over the turning foot.

(4) The chin and left shoulder lead the turn.

(5) The athlete goes into the turn in a 'sitting-down' position.

(6) The left foot and knee begin to turn just a moment before the body-weight passes on to the leg.

(7) The shoulders remain level throughout.

(8) The throwing arm trails relaxed and wide of the body.

(9) In the slight jump the left leg moves at great speed from the rear to the front of the circle.

(10) The right foot and knee turn in sharply to initiate the throwing movement.

(11) There must be continuity and a constant building-up of speed between turn and throw; but this speed must always be under control.

CHAPTER TWENTY-FOUR

THROWING THE HAMMER

SOME will be surprised to find a reference to hammer throwing in a book that deals with athletics for schools, for very few schools at present even consider the event, although it is now included in the programmes of the London Athletic Club's annual schools meeting and the A.A.A. Junior Championships. Boys should be taught something of this highly technical and enjoyable event, although it is impossible to cover all of its fundamentals at school.

To those who would omit it on the grounds of it being too dangerous, it may be pointed out that discus and javelin throwing are also dangerous activities, if proper preparation and supervision are lacking, as are many other exercises normally included in the physical-training lesson. Quite obviously, the actual throwing of hammers must take place in a well-organised and disciplined fashion, yet many of the skills of hammer throwing may be learned without actually throwing anything. Weighted sandbags, attached by cord to wooden handles (Fig. 139), can be used in place of hammers for the majority of the instruction in schools. The adult who specialises in this event can swing such an improvisation indoors, but where schoolboys are concerned this is not advisable. Nevertheless, there need be no greater element of danger or damage in this event than in many other activities in physical education.

To-day hammers are thrown from smooth surfaces, usually from cindered circles. A gym. floor or asphalt playground is

to be preferred to grass for the teaching of footwork in hammer throwing, and *plimsolls are always worn.*

TECHNIQUE

Although there are several styles of hammer throwing, they all possess certain basic fundamentals. These are closely related to, and in some cases are the same as, the fundamentals of the other throwing events.

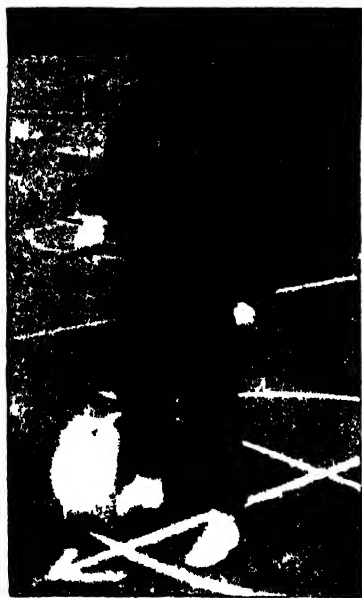


FIG. 139

The hammer thrower has always to consider the effect of his movements on the missile. These must be so regulated that it is released with the greatest possible speed and at the proper angle (i.e. one of approximately 45 degrees). The hammer's speed is built up in the preliminary swings and during the turns across the circle. It is added to in a final heave from the legs and trunk, which is imparted immediately prior to release.

It is important always to give the hammer head the greatest possible radius of swing, since for any given turning speed of the athlete, the greater the radius of swing the faster will it be released. A hammer thrower must rotate about an axis which passes through his base (i.e. one foot or through a line drawn between both feet and the centre of gravity common to the athlete and the missile). It is essential to keep the shoulders as close to this axis as possible (see Diag. 35, *a*), for since the thrower and hammer head tend to revolve on opposite sides of the central axis, the hammer radius will be unnecessarily

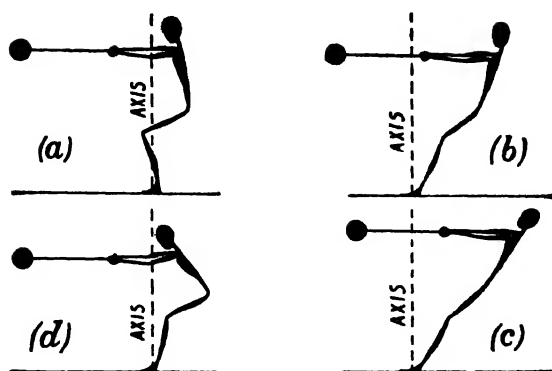


DIAGRAM 35.—THROWING THE HAMMER

shortened (see Diag. 35, *b* and *c*). Therefore the arms should be kept as straight as possible, and the trunk held in as erect a position as the pull of the hammer and the physique of the athlete will permit.

In the course of turning several times (usually three) to increase the speed of the hammer, the thrower moves from one side of the circle to the other. During this transition the axis of rotation should move directly across the circle, for any deviation of the path of the axis will automatically check the smoothness of the swing of the hammer. Therefore it is essential to execute the footwork as neatly and smoothly as possible and, likewise, in a direct line from one side of the circle to the other (Diag. 36).

There must be controlled acceleration from the moment the hammer head leaves the ground to the moment of release. Each movement, each turn, should be faster than its predecessor, and yet the athlete should maintain perfect control throughout.

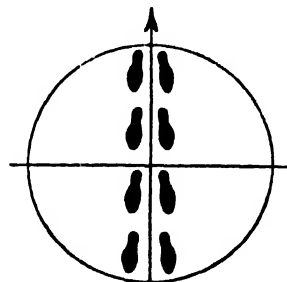


DIAGRAM 36.—FOOTWORK FOR THROWING THE HAMMER

Ideally, the hammer's speed should increase from the beginning to the end of the throw.

As in all other throwing events, it is important to maintain contact with the ground until the missile has been released, for otherwise it is impossible to apply a maximum effort.

The best results are obtained only when the whole of the body is brought into the effort. *Anyone who aspires to success in this event must understand at an early stage that the hammer is thrown almost entirely by the legs and trunk. The arms have a purely passive role, being used merely as a prolongation of the handle.*

A majority of the world's best throwers at the present time use a throwing style based on a technique worked out by German coaches. Many British throwers have adopted this style, with the result that the standard of performance in this country, already the highest ever known, continues to improve rapidly.

The technique of the German style may be sub-divided into the phases of (a) starting position, (b) setting the implement in motion, (c) transition from swings into first turn, (d) the turns and (e) the release.

(a) Starting Position

(Here it is assumed that the athlete turns to his left, throwing from the left side of his body—as do a majority of performers.)

The hammer thrower adopts the position in Fig. 140. Note that he stands in the rear half of the circle, with the toes just inside its inner edge and with the back to the direction of throw. The feet straddle a general line of direction (here marked in for instructional purposes only) about shoulder-width apart. The athlete assumes a 'sitting-down' position, with a slight flexion at the knees which are pressed forward, the seat is held in and the trunk is erect. He holds the handle lightly in the fingers of his right hand.

(b) Setting the Implement in Motion

The hammer is swung to the thrower's right-rear so that it comes to rest at the point where the dividing line across the

circle meets the circle's edge (Fig. 141). Note:

(1) That the trunk has made a quarter-turn to the right, but that it remains erect. To adopt such a position the left knee turns in and the corresponding heel is turned out; the body-weight is eased slightly over the right leg.

(2) That the left arm and the wire of the hammer form one line. The arms and the chest form a triangle; the athlete looks at the hammer head.

(3) The method of grasping the hammer, with the *left* hand (gloved) inside. The right hand rests only *lightly* over the fingers of the left hand. (Fig. 142 brings out the details of a correct grip.) The thumbs should never be crossed.



FIG. 140

From this position the thrower begins the swinging movements which are used to overcome the hammer's inertia and to set in motion the sequence of rotation. No more than two preliminary swings are necessary to achieve these ends, and many throwers use only one.

The initial work of getting the hammer on the move is performed by the right arm which, at this stage, is slightly flexed. It straightens as it presses forward in something approaching an under-arm bowling action. This is the only time, right throughout the complete technique, that this arm plays an active part. The head of the hammer should be *lifted*, not dragged, into motion.

As this bowling movement takes place, the trunk twists to the left and the weight of the body also moves slightly to the left to a position between the feet. (Figs. 143, 144 and 145

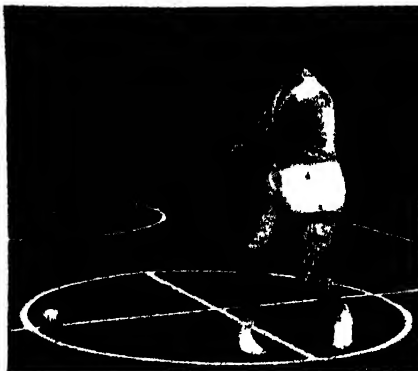


FIG. 141



FIG. 142

show this movement executed without the hammer.) With the hands at shoulder height, the left knee turns in sharply, the left heel being raised, and the trunk turns back a quarter-turn to the right. It is important to perform this leg and trunk action *before* the hands are taken above and to the rear of the body, otherwise the thrower will be pulled off balance (Fig. 146). The arms are then flexed to sweep the hands in a wide arc above the head.

Then follows a slight pause to allow the hammer to drop once again to the right-rear, but this time it is clear of the ground. As the missile drops, the arms, now relaxed, are pulled taut by its centrifugal pull. The temptation to trail the hammer, i.e. to twist the trunk ahead of it, must be avoided at all costs. The hammer head, the hands and the thrower's head must remain in line, with the eyes fixed on the hammer. No effort to hurry the hammer should be made, e.g. by pulling with the left shoulder or straightening the right leg. *The hammer must do the work.*

(c) Transition from Swings into the First Turn

The thrower now passes from his preliminary swinging movements into his first turn. This is probably the most



FIG. 143

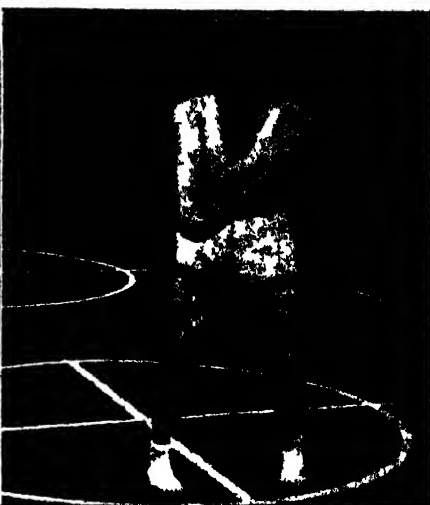


FIG. 144

important phase of all the hammer-throwing technique. If he performs his movements correctly he will go into his turns with balance, control and relaxation, all factors of the utmost importance in the event. During this transition the flight-curve of the hammer is also adjusted.

Every athlete must experiment to ascertain the extent to which he can afford to accelerate the hammer in the initial swing or swings. Most throwers tend to use far too much speed at this stage. However, no conscious effort should be made to increase the speed of the transition swing. The value of balance, control and relaxation is great, for if these things are lacking in the transition movements nothing can be done to retrieve the situation during the turns.

The transition swing is flatter than its predecessors. This is because at this stage the hammer's low point of swing shifts to a position off the right foot. The greater pull of the hammer (due, of course, to the building up of centrifugal force) should be resisted by pressing the knees farther forward. The trunk,

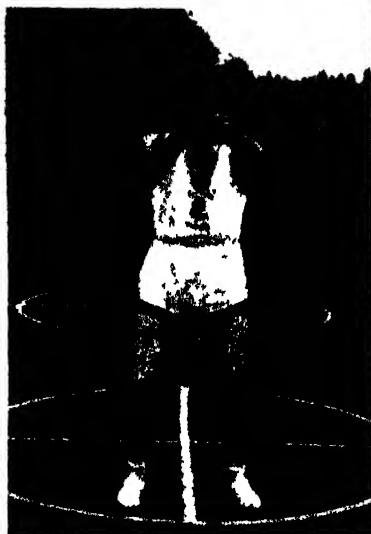


FIG. 145



FIG. 146

however, remains erect and the arms relaxed. It is re-emphasised that no effort must be made to precede the hammer head (Figs. 147 and 149, *a* and *b*).

With the eyes still directed towards the hammer head, and with the hammer, hands and the athlete's head in one line, the thrower follows the hammer round to his left and begins to pivot on the left heel, the sole of the left foot being raised *slightly*. This heel-pivoting must be performed through 180 degrees of the athlete's turning. The right foot remains on the ground until the twisting of the trunk and hips snatches it quickly round into its next position.

The hammer pulls the athlete into this turn. The thrower does not lead the hammer.

(d) The Turns

A majority of champion throwers use three turns before releasing the missile. These are designed to increase progressively the speed of the hammer head. The footwork of each

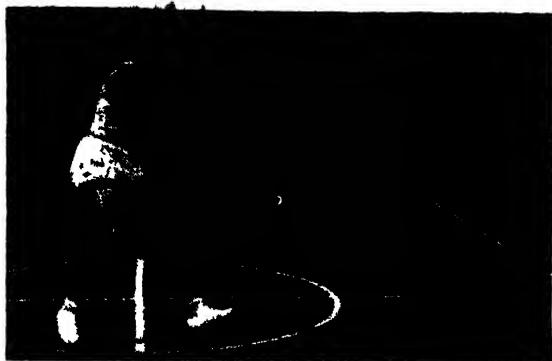


FIG 147

turn is shown in Figs. 150-154. In this German style of throwing an acceleration impulse occurs each moment the feet and hips are approximately square, facing the rear of the circle. The trunk is pivoted so that the triangle formed by the shoulders and arms is behind and to the thrower's right (Fig. 148).

As the hammer swings to the front of the thrower it is accelerated by the trunk forcing the shoulders to catch up with the hips below (Fig. 149, *c* and *d*). Then, as the hammer starts moving into yet another turn, the hips and shoulders are together again, remaining so for the first 180 degrees of that turn. This is repeated on each subsequent turn, with the hammer head gaining speed throughout.

During these turns the increased pulling power of the hammer head should be resisted



FIG. 148

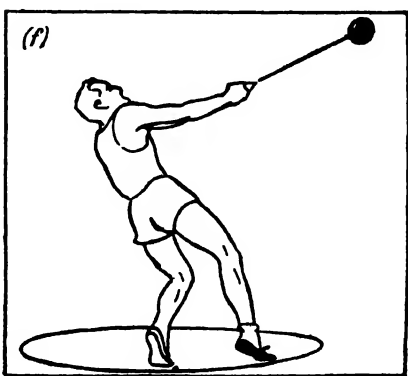
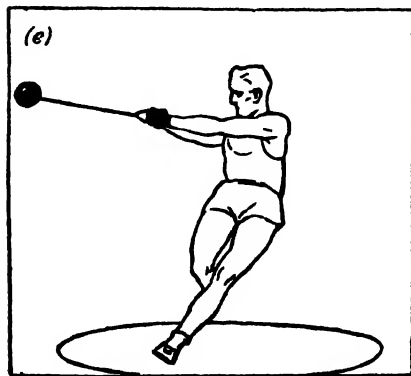
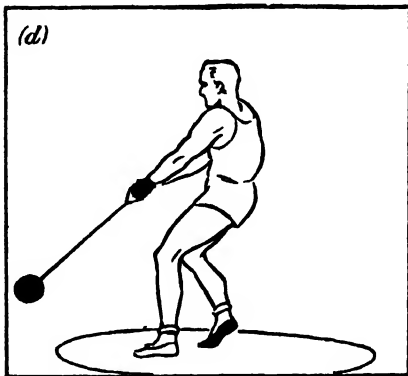
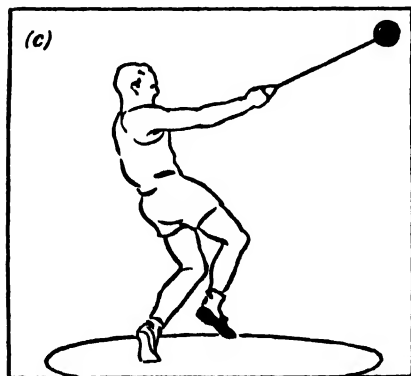
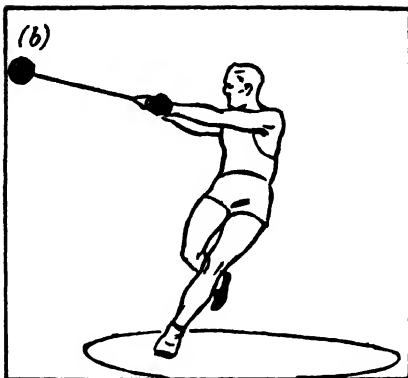
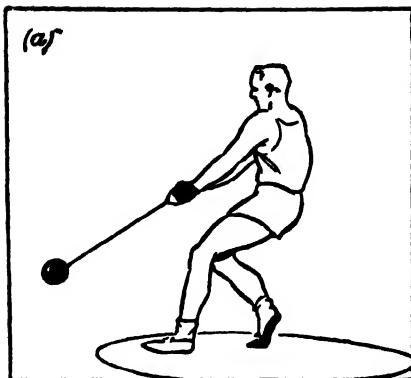


FIG. 149

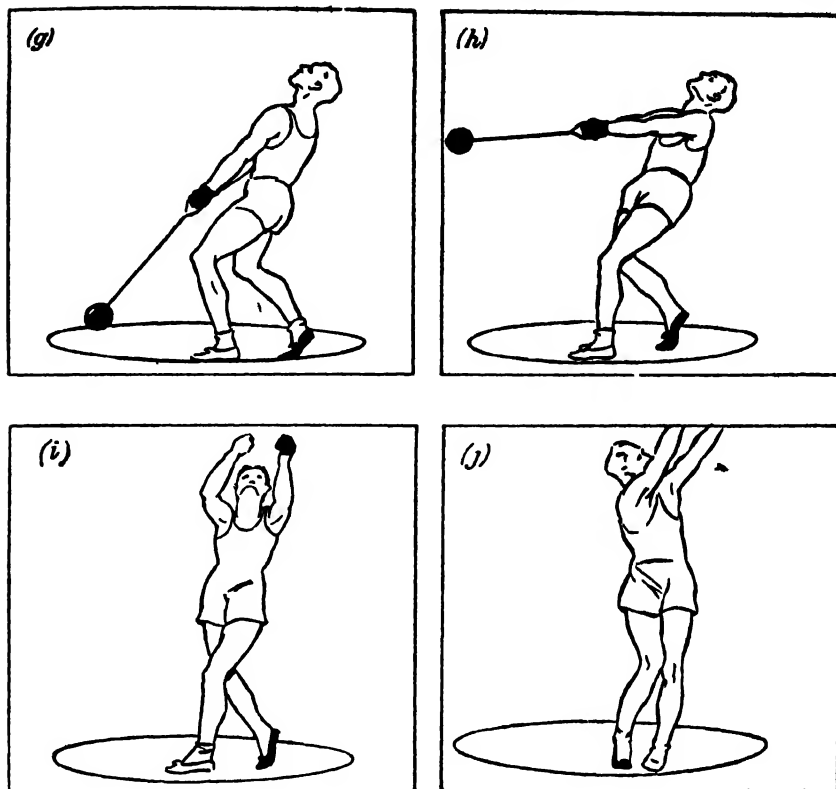


FIG 149

(Note only two of the three recommended turns are shown)

by a pressing forward of the knees, for in this fashion the trunk can be kept erect with the shoulders close to the axis of rotation. As has been stated earlier, this axis must move directly across the circle so that the path of the hammer head shall be as smooth as possible, and this cannot be so if the body-weight shifts from side to side during the turns, or if the footwork fails to move straight across the circle as recommended. (Common, but bad, turning positions are shown in Diag. 35, *b*, *c* and *d*.)

These are condemned because they shorten the radius of hammer movement and/or lessen control.

(c) The Release

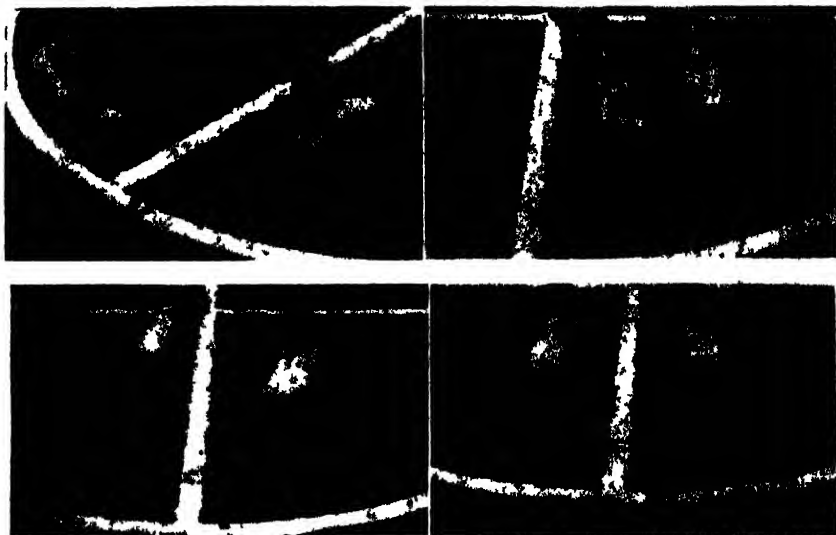
A vigorous throwing movement is now added to give the hammer the greatest possible speed of release and to project it at the correct point in its flight curve, thus releasing it at the most favourable angle.

After three turns a good thrower will be straddling the general line of direction. His feet position here will be almost the same as at the end of each preceding turn, except that the feet should now be somewhat closer together. Both legs will be flexed at the hips and knees, with the hips approximately square to the general direction line, and the trunk erect but turned so that the triangle formed by the shoulders and arms is behind and to the thrower's right (see Fig. 149,f).

Here again the shoulders catch up the hips below, but as soon as the right foot contacts the ground the thrower drives his body-weight over on to his left leg, thereby shifting the position of the hammer's axis and lengthening its flight path. This position is characterised by a straightening of the right leg and a slight flexing of the supporting leg. All these movements must be performed at lightning speed to be of any value to the thrower.

As in the discus and the shot, the final releasing movements of hammer throwing are characterised by a stretching and lifting of the legs and trunk. In this event and at this moment in particular, the arms play a passive role, being merely a prolongation of the hammer's wire shaft. To get the best out of the legs and trunk in this powerful lifting movement, the hammer head should have dropped as close as possible to the feet. This movement, of course, is easier for tall men.

In a good throw the trunk will continue to remain erect throughout. The general tendency, however, is for a thrower to lie back as the final movements are made, but this greatly



FIGS 150-154

weakens the release position. A good thrower will move around his left shoulder as his body, with the hammer, rotates in that direction. The hammer handle is released at a point opposite the shoulders; the right hand leaving just a fraction before the gloved left. The hammer then flies off at a tangent, projected at an angle which is equal to that of the plane of hammer swing immediately prior to the moment of release. In reversing, the thrower uncrosses his legs and completes the turning movement of his trunk and hips.

PROGRESSIVE TEACHING STAGES

1. * The Preliminary Stance

(a) Each member of the class gets into the position shown in Fig. 155. Note that the trunk is erect with the seat in. The knees are pressed forward, and the feet are about shoulder-width apart, with the toes pointing straight ahead. The head is in natural alignment with the shoulders, and the arms are dropped, relaxed, to the sides.

(b) The previous position is again adopted, but the right hand grasps the handle of the shaft. This is then lifted in front of the body and to the fullest extent of the right arm (Fig. 140), and then the hammer head (or sandbag) is swung back to rest on the ground at a point approximately $3\frac{1}{2}$ ft. to the boy's right-rear. To do this the left knee is turned in slightly and the corresponding heel is raised from the ground. Simultaneously the upper part of the body makes a quarter-turn to the right. The left hand is then transferred to grasp the handle, and the right hand, relaxed, is laid on (Figs. 141 and 142). The arms and hammer shaft (rope or wire) should form one line to the hammer head. The head is turned to gaze at the hammer head. The trunk remains erect and relaxed. (This position may be practised without a hammer or its improvisation (Figs. 141 and 143).)



FIG. 155

2. Preliminary Swings

(a) * Without hammers, the teacher then takes the class slowly through the movements of the preliminary swings. At first the class assumes the position described in progression (a) of the preliminary stance, and then they are shown how the trunk should twist on a vertical

axis through about 90 degrees on each swing, the left heel being raised off the ground and the left knee turning in slightly as a prerequisite to this trunk-twisting movement; the arms remaining relaxed to the sides. The arm action is then introduced. Without the hammer, the class adopts the preliminary stance (b) position (Fig. 143). With the right arm straight and hands clasped, the arms are then swung to a point in line with the left shoulder and parallel to the ground (Fig. 145). The trunk twists and the hands pass over the head, and are then permitted to resume their starting position (Figs. 143 and 146). These movements should be practised many times.

(b) The swinging motions are then carried out with an implement. The following points should be noted by the teacher:

(i) The sandbag or hammer head should be cased off the ground with the right arm employing an under-arm bowling movement; *this is the only time in all hammer throwing that this arm does any real work*. During this movement the weight of the body must remain between the feet.

(ii) The boys should be encouraged at first to brush their foreheads with their hands as the hammer is taken back, but as proficiency increases these hands may be swung at a wider arc above the head with the arms straighter.

(iii) The turning movement of the trunk to the rear must always be preceded by a turning in of the left knee and a slight raising of the corresponding heel. No trunk twisting takes place until the hammer head has been swung, with the arms, in line with the left shoulder.

(iv) From the hammer head's low point (right-rear) to the moment that the trunk twists to the right-rear, the eyes should follow the hammer, and the thrower should maintain an isosceles triangle with the chest and the arms, i.e. the hammer head, hands and the thrower's head must be in one line (Fig. 148).

(v) Apart from the moment when they are flexed to pass

the hands over the head, the *arms should stay relaxed*. Only the centrifugal pull of the implement pulls them into a straightened position. No effort must be made to accelerate the hammer by pulling (and therefore flexing) the arms.

(vi) Throughout these movements the trunk remains erect with the seat in. The knees press forward and the body-weight stays between the feet.

(c) The arm movement may then be practised, with the left hand grasping *only*, to emphasise that little work is carried out by the other hand. Then the right hand is returned to rest only lightly over the left.

3. The Turns

(a) * The class now practise the footwork of the turns without hammers. They are taught to turn through the first 180 degrees on the heel of the left foot (sole only just clear of ground) and the sole of the right; then, turning on the ball of the left foot, the right foot is picked up and placed behind its previous position (Figs. 150–154). Note:

(i) The right foot must not leave the ground until the last possible moment; it is 'snatched' from the floor, so to speak.

(ii) The right knee passes close to the left in this movement.

(iii) The trunk remains erect and the knees are slightly flexed.

(b) * The footwork is then used *with the arms*; again with an imaginary hammer. *Stage 1*: Class adopts position shown in Fig. 156, eyes and hands in line with hammer head. *Stage 2*: They then 'follow' the imaginary hammer head to its high point behind the left shoulder, turning the left foot through 180 degrees and keeping the right foot on the ground (Figs. 157 and 158). *Stage 3*: They complete the footwork, finishing in a position where the trunk is a quarter-turn behind the hips (Fig. 159). The shoulder line is then permitted to catch up the hips below, and the movements are then repeated.

(c) With the hammers or sandbags, the class now practise going into the first turn. The swing is flatter and, 'following'

the hammer head with the eyes, the thrower turns on the heel of the left foot (Fig. 156 and 147).

(d) Each boy is then told to attempt a series of turns with the hammer—regardless of the number or their direction of movement. The eyes watch the hammer head the whole time; the arms remain relaxed.

(e) * The class, in pairs, works for relaxation in the arms and gets the 'feel' of holding on. The 'master' holds the hammer head, while the 'pupil' adopts the correct position shown in Fig. 160.

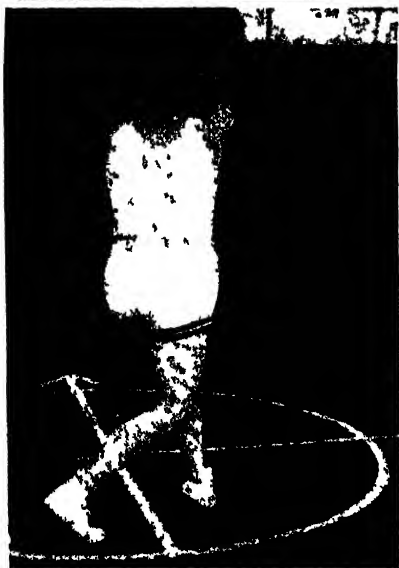
(f) Working in pairs, the boys then practise to polish up their footwork and turns. A centre line is drawn, a 'line of direction', and they strive to progress across the imaginary circle with their feet straddling this line at the completion of each turning movement (Diag. 36).

(g) When it is felt that the turns are balanced, moving correctly across the line of direction and progressively accelerated, three turns only may be attempted. The 'line of direction', 7 ft. long, is marked on the ground, and each boy attempts three turns. If their footwork is correct they should remain inside the 7 ft. diameter on the third turn.

4. The Release

The movements of the final release in hammer throwing are some of the most difficult to master in athletics. Ideally, to the swings and gyrations of the hammer should be added a final pull with legs and trunk which can account for an extra 30-40 ft. However, it is possible to throw fair distances (of up to about 150 ft.) on what is termed 'rotation' throwing, i.e. merely on the swinging and turning movements already described, and *without* the final heave. The schoolmaster should remain content to teach:

- (a) The preliminary stance;
- (b) The preliminary swings;
- (c) The transition; and
- (d) The rotation turns.



FIGS 156-159



FIG. 160

Therefore it is recommended that the boys be permitted to release the hammer in 'rotation' fashion at the end of the third turn. The handle leaves the left hand at a point in line with the shoulders to the thrower's left (Fig. 149 *h*). (Throws should take place from a 7-ft. circle.)

Note.—The sandbags should be weighted to about 5 lb. to begin with, and gradually increased over the weeks to weights of about 8 lb. Boys over the age of sixteen can be permitted to work up to 12 lb.

Progressions: Preliminary Stance (*a*) and (*b*),
Preliminary Swings (*a*),
The Turns (*a*), (*b*) and (*e*)

can be practised indoors. Other progressions are of the type of work employed in the *indoor* training of adult performers using sandbags, but for class activities they are considered somewhat dangerous indoors for boys. The performers should be spaced at least fifteen feet apart when swinging, and when work is being done in pairs the 'master' should stand on that side of the 'pupil' corresponding to the downward swing.

APPENDIX

AN ATHLETICS NOTICE-BOARD

On the opposite page is an illustration of the kind of notice-board for use in schools. A senior boy or girl can be delegated to look after this board, always taking cuttings or announcements to the teacher before making alterations to the board. The picture of the previous week (A) is placed below 'This Week's Picture', together with the comments of the teacher. The boys can then check their own views with the teacher's.

Each event has its ladder (B), and the best six (or more) boys or girls in that event are placed in order of merit.

Guides to training (C)—rather than schedules—are listed below each event. Graphs are worked out on general improvement of school or some other performances of interest (national or individual).

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ATHLETICS FOR SCHOOLS

Although this book was written primarily for those responsible for the teaching of Athletics in schools, it has been found of great value by Training Colleges, Youth Organisations, Club Coaches and by those interested in coaching or improving personal athletic performance. It indicates clearly the position of Athletics in the school curriculum, and traces its development through the Primary and Secondary Schools to the stage when the performer is sufficiently advanced for the attention of the specialist Athletics coach.

All types of events, both field and track, are fully dealt with, and are illustrated by photographs and sketches specially prepared for the book. Athletic Standards, by which performers can measure their progress in all athletic activities, are given in detail and are accompanied by Performance and S.A.A. National Standards Tables.

On the basis of their unique knowledge and experience, the authors have written a book that will make a major contribution to the development of athletic technique and performance.

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